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# THE IRON TRADE REVIEW

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## *Typical Repeat Orders*

GENERAL LIBRARY
FEB - 5 1921
OF MICH.

One of 23 Berwick Electric Rivet Heaters used by the National Steel Car Corporation, Limited, Hamilton, Canada.

NATIONAL STEEL CAR CORPORATION
LIMITED
Hamilton, Canada

(*May 7th*, 1920)
"We purchased one Berwick Heater in 1915 and one in 1916. The results and efficiency have so pleased us that we have decided to equip our steel erecting shops complete, requiring—

**7 No. 3 5-Electrode Heaters**
**11 No. 3 3-Electrode Heaters**

—making a total of eighteen in all."

(*September 28th*, 1920—*telegram*)
"Wire immediately best price and delivery on three additional Electric Rivet Heating Furnaces, size 3-3, for 1-inch rivets, same as recent order."

The above endorsement from Mr. B. B. Hamilton works manager, backed by three repeat orders, is significant. Twenty-three Berwick Electric Rivet Heaters are now operating in this plant.

Among other users of 763 Berwicks are—

| | |
|---|---|
| American Locomotive Co. | 20 Heaters |
| Hydraulic Pressed Steel Co. | 15 Heaters |
| Pressed Steel Car Co. | 26 Heaters |
| Virginia Bridge & Iron Co. | 11 Heaters |
| Brown Hoisting Machinery Co. | 10 Heaters |

## BERWICK ELECTRIC RIVET HEATER

In our own plants we are using 250 Berwick Heaters. Some have been operating for seven years. In one plant they effect an actual saving of $500 a day.

*Worth investigating, isn't it?*

## American Car and Foundry Company

**Chicago** **165 Broadway, New York** **St. Louis**



Advertisers' Index, Pages 222, 223 Contents, Page 322 (Editorial) "Where-to-Buy" Page 126
Engineering Directory, Pages 186, 187 Classified Advertisements, Pages 202-221

# CONNERSVILLE TAR PUMPS

The shipment of fifteen Valveless Rotary Tar Pumps above is enroute to a Benzol Recovery Plant. These pumps are expected to render positive, practically repair-free, enduring service.

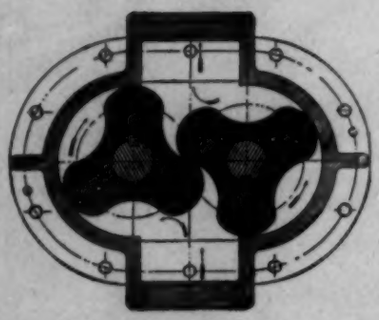

*Illustration of Interior Design of Pumps. (No contact between moving parts, or with case.)*

They are of simple and efficient design, with all troublesome valves, valve parts, internal packing, friction, etc. completely eliminated.

The extensive use of these pumps in Benzol Recovery and other plants is indicative of the uncommon service value found in them.

Quotations and descriptive matter sent on request.

## The Connersville Blower Company

Connersville Indiana U.S.A.

Chicago, Monadnock Block New York, 114 Liberty Street

THE IRON TRADE REVIEW

Registered U. S. Patent Office

Vol. LXVIII Cleveland, February 3, 1921 No. 5

# More Idle Capacity Resumes

## Increased Production by Independent Companies Based on Recent Accumulations and Not New Tonnage—Bookings Show Some Betterment, However—January Loss of Blast Furnaces Is 21—Steel Corporation Cuts Sheet Wages

FURTHER idle rolling and steelmaking capacity has been put in operation by independent producers during the past week, in Chicago, Pittsburgh, Mahoning valley and eastern territory. At the same time Steel corporation plants have run on their accustomed high scale. Mill output all around accordingly is better than it has been for some weeks. The Mahoning valley, a typical producing center shows a 50 per cent activity. Most of this gain still is attributable to the backing up of some tonnage during recent cessations plus a modest amount of new business. Some releases by automobile builders have helped the sheet mills. Few plants resuming in any line, however, have been able to accumulate more than a few weeks' work ahead. Hence as production apparently now is in excess of new bookings, the test whether present activities can be maintained will not be long delayed unless an appreciable expansion of business develops.

A strong feeling is growing up among buyers and sellers of iron and steel that present transportation charges constitute so large an element in operating costs that they are materially retarding the final readjustment of the industry. Accordingly the keenest interest has been aroused by the reports that railroad executives are seriously considering the advisability of rate reductions as a means of stimulating traffic.

### Sheet Wages Are Cut

Because of the general importance that is attached to the wage policies of the Steel corporation under present conditions the 10 per cent cut in the hot mill employes of the American Sheet & Tin Plate Co. effective Feb. 1, has caused much comment. It is pointed out that this reduction follows a similar one of 19½ per cent posted Jan. 1 by the union independent mills under their bi-monthly scale agreement with the Amalgamated Association of Iron, Steel and Tin Workers. A nonunion sheet mill at Canton, O., has accepted a voluntary proposal of its men to stand a reduction of 21 per cent to equalize conditions with nearby union plants and has resumed operations. Independent operators in the Lake Superior iron ore regions put in effect Feb. 1 the general reduction of 15 per cent which they recently announced. The Oliver Iron Mining Co., the Steel corporation subsidiary, continues to maintain the old scale.

### Many Stacks Now Out

Sharp curtailment of pig iron production still is in progress as shown by the 21 additional stacks added to the idle list in January. This increases the number of furnaces blown out during the past three months to 106. The number active Jan. 31 was 184 which is the smallest since the Steel strike in September, 1919. January's iron output was 2,412,293 tons, a reduction of 287,975 tons over December. Merchant furnaces lost 116,378 tons or about 20 per cent.

Pig iron prices still are slipping. At least two valley makers are selling or quoting No. 2 foundry at $29 furnace and will go lower on attractive business. In fact, offers of $28 Ohio furnace appeared this week in New England. A large Pittsburgh steel company is offering basic at $28 furnace. A 500-ton sale of bessemer in the Wheeling district was closed at $31.10 delivered, equivalent to about $29 valley. Chicago makers are quoting $30 to $31 base. Eastern and Buffalo iron are selling generally at $30 base. Alabama iron more freely is being offered under $30 Birmingham. Eastern markets are more active than western and while sales are a little more numerous in no cases are they heavy.

### Prices Are Spotty

With the Steel corporation showing no inclination to reduce prices, shading by independent producers is less in evidence. The situation is spotty however. On galvanized wire concessions of $5 to $10 to large fence manufacturers are reported. Sheet bars have been quoted at $43 Youngstown in northern Ohio. Chain has been reduced $10 per ton and iron boiler tubes also have been lowered. All mills quoted the full prices on plates and shapes to the navy on 5100 tons for two battle cruisers.

The IRON TRADE REVIEW composite average this week is $50.78. The January average was $51.73, that of February, 1920, $65.63, and of February, 1914, $23.52.

# THE IRON TRADE REVIEW

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## Some Causes of Underconsumption

IN EASTERN steel circles much discussion is being heard regarding the prices now being charged for steel made in Belgium. Comparative prices show that Belgian mills today can undersell domestic producers at New York on various semifinished and finished products, but are not able to go very far inland on a competitive basis.

Under present circumstances lower foreign prices are a market factor because the demand for steel is slight and Belgium has tonnage sufficient to meet the demand. However, it is felt by those who have analyzed the situation carefully that even though Belgian steel could be brought to this country, this is no adequate argument for a further reduction in domestic prices. Belgium really has not the production to fill any considerable demand. In addition, it is charged, much of the steel that passes off as Belgian is really produced in Germany and its low price is a result of the very unfavorable monetary exchange factor. Rising Belgian exchange now in effect will tend to cut down any price advantage of these producers at eastern seaboard.

Herbert Hoover, in a speech before the New York Merchants' association, recently declared that the world is not suffering from overproduction but rather from underconsumption. This is a condition brought about by the poor finance and credit conditions throughout the world. Bankers have failed to supply the necessary credits to permit business to continue along the lines it was going during the three years just past. The bankers hardly are to be blamed for this condition in view of the tremendous inflation of values in all lines.

Recent years have witnessed an unparalleled assumption of prereogatives on the part of governments in matters of trade. Until the governments withdraw from active participation in finance and commerce the readjustment to a normal status will be delayed and made that much more difficult. Australia is unable to buy of the world because she has been refused monetary credits and given only book credits by England. That is but a sample of what has been happening. Any number of other instances could be cited, and the government of the United States would not escape censure on this score.

Various evidence is presented today that the production of basic commodities is not sufficient to meet the normal needs of the population of the world. Underconsumption in a large measure is due to the lack of purchasing power. The American railways are recognizing this condition today and are reported to be considering the reduction of the present scale of greatly advanced freight rates to stimulate commerce. Such a course would have a more sweeping effect nowhere than in iron and steel where the transportation factor is peculiarly great. How great this actually is was clearly illustrated by the article in THE IRON TRADE REVIEW of Jan. 27 which showed that the cost of freight carriage for the assembling of raw materials in the Mahoning valley sufficient to make a ton of pig iron today is $10.55 or practically 120 per cent more than it was in 1912.

It is certain that before prices of iron and steel again can come down to the low point of prewar years, which many buyers have had in mind, there must be a radical readjustment of cost factors from their present-day basis. To such a readjustment, transportation must make a large if not the largest single contribution. This is because of its far-reaching character as an element of cost since it underlies virtually every item of blast furnace and steel works operation.

## Zinc Position Less Favorable

DESPITE stringent measures taken by the zinc industry to curtail production to a rate commensurate with consumption of the metal, the statistical position of the the zinc market has steadily been growing less satisfactory. Stocks of prime western in hands of smelters Dec. 31 were 70,000 tons; now they are estimated at upward of 80,000 tons,

or nearly four months' consumption at the current rate. The operations of the Steel corporation's sheet and tin plate subsidiary have been close to capacity, but the former interest produces its own zinc at its smelters in Cherryvale, Kans., and Donora, Pa. Independent sheet mills, on the other hand, have been operating on an average probably well below 30 per cent in the galvanizing departments. The brass mill trade also has been limping along at a low rate, with the result that the zinc trade generally has had an extremely limited market. The difficulty of the situation has been accentuated by the fact that prices have been driven down by low import costs to levels where each pound of metal sold represents a definite monetary loss to the smelters. Most of the large smelters have been holding to their stocks, but small interests needing cash have offered enough metal now and then to drive prices down to 5 cents a pound, East St. Louis, which is well below the average price prevailing before the war.

The failure of the Fordney emergency tariff, as now seems likely, has removed the possibility of relief from the loss on metal sold currently. But no emergency or any kind of a tariff could cure the present real illness of the zinc industry, which grows out of light demand, overproduction and increasing stocks.

## Continue Personnel Work

IN A recent report by an eastern industrial commission the statement is made that there is at present a marked tendency toward the curtailment and even elimination of what is known as welfare work or personnel administration. The business depression has made employers consider every item of expense and in the hurry to reduce outlay to the minimum, welfare work has been classed as a "frill." In many cases it has been one of the first expenses to be eliminated. Some employers have considered it an unnecessary overhead, only required when labor is scarce. Certainly nothing bearing on the labor problems of the country is more important than the honest endeavor on the part of employers to create favorable conditions among the workers.

Considered purely as a question of dollars and cents to the individual employer, there are probably few factors which are more important in the long run than the socalled welfare work. During the war it probably was carried to extremes. Anything approaching a "nursing" or "coddling" of labor is not to be desired, but there is little question that industrial relations between employe and employer must continue to receive careful consideration or a recurrence of many of the difficulties of the past is sure to follow as soon as the present depression is safely passed.

From Jan. 1, 1912 to Sept. 3, 1920, the United States Steel Corp. spent $81,000,000 in welfare activities and considered it well spent. The present state of labor surplus is temporary. This implies that the worthy features of personnel work should be maintained. Otherwise the sincerity of the employers in carrying forward this work in recent years will be open to question.

## Insuring Export Credits

WHILE congress has been toying with a scheme to revive the War Finance Corp. in order to extend export credits for the benefit of a single class in the American community, the farmers, Great Britain is elaborating a plan to re-establish her foreign trade which will work for the entire nation. Moreover the British proposals have one element of sound common sense in that reliance is to be placed on private enterprise—the great British insurance companies—rather than on a government bureaucracy. Briefly the British scheme of financing is simply this:

The manufacturer or producer of raw materials will sell to continental European buyers on long terms and receive in exchange bonds or notes. If circumstances seem to require it, these notes or bonds will be endorsed or guaranteed by the government of the importing state. But since, owing to the chaos in government finance in most of Europe, even such guarantees are insufficient from the business point of view, the seller of the goods will also insure the transaction in Great Britain against nonpayment. The necessary credit-insurance policies will be issued by a powerful private corporation made up of experienced insurance factors such as Lloyds. It will maintain its own organization and be in a position to decide on risks and quote premiums with business promptness. The cost, which will of course include the losses, will eventually be borne by the foreign purchasers.

The feature of this plan, as contrasted with recent proposals in congress, is that it will be operated as a private institution, on business principles, and that the participants expect to make a profit. The government may participate only to the extent of loaning funds which will be amply secured. Armed with credit-insurance policies the sellers of goods will have no difficulty in borrowing from their banks to carry through their transactions. In fact the essence of the British plan contemplates close co-operation between the banks and insurance companies, the latter furnishing the machinery necessary to spread out any losses.

The whole plan savors of sound business principles backed by long experience in export merchandising. The British people have a knack of going at problems of this sort in a practical way, with due regard for the incentive of private enterprise, which some of our congressmen might do well to study if they could be led to see beyond their own constituencies.

# Iron and Steel Prices

CORRECTED TO WEDNESDAY NOON—SCRAP, WAREHOUSE, ORE AND OTHER PRICES ON PAGES 384 AND 388

## Pig Iron

| | |
|---|---|
| Bessemer, valley | $30.00 to 32.00 |
| Bessemer, Pittsburgh | 31.96 to 33.96 |
| Basic, valley | 28.00 to 29.00 |
| Basic, Pittsburgh | 29.96 to 30.96 |
| Basic, Buffalo | 30.00 to 32.00 |
| Basic, delivered, eastern Pa. | 31.50 |
| Malleable, valley | 30.00 |
| Malleable, Pittsburgh | 31.96 |
| Malleable, Chicago | 30.50 to 32.50 |
| Malleable, Buffalo furnace | 30.50 to 32.50 |
| Malleable, delivered, eastern Pa. | 31.90 to 32.40 |

### FOUNDRY IRON SILICONS

| | |
|---|---|
| No. 2 Northern | 1.75 to 2.25 |
| No. 2 Southern foundry | 1.75 to 2.25 |
| No. 2X Eastern and Virginia | 2.25 to 2.75 |
| No. 1X Eastern | 2.75 and up |
| No. 1 Chicago | 2.25 to 2.75 |
| No. 2 foundry Eastern | 1.75 to 2.25 |

| | |
|---|---|
| No. 1X, eastern delivered Phila. | $32.54 to 34.54 |
| No. 1X, Buffalo | 33.00 to 34.00 |
| No. 2 foundry, valley | 29.00 to 30.00 |
| No. 2 foundry, Pittsburgh | 30.96 to 31.96 |
| No. 2 foundry, Buffalo | 30.00 to 32.00 |
| No. 2 foundry, Chicago | 30.00 to 32.00 |
| No. 2 foundry, Ironton furnace | 33.00 |
| No. 2 foundry, Cleveland | 30.00 to 32.00 |
| No. 2X, eastern delivered Phila. | 32.09 to 33.79 |
| No. 2X, eastern N. J., tidewater | 32.29 to 33.79 |
| No. 2X, eastern del. Boston | 35.31 to 40.31 |
| No. 2X foundry, Buffalo furnace | 31.25 to 33.25 |
| No. 2X, Buffalo del. Boston | 36.46 to 38.71 |
| No. 2 foundry del. Philadelphia | 30.84 to 32.54 |
| No. 2 foundry, N. J., tidewater | 31.04 to 32.54 |
| No. 2 southern, Birmingham | 28.00 to 30.00 |
| No. 2 southern, Cincinnati | 32.50 to 34.50 |
| No. 2 southern, Chicago | 34.66 to 36.66 |
| No. 2 southern, Philadelphia | 36.66 to 38.66 |
| No. 2 southern, Cleveland | 34.66 to 36.66 |
| No. 2 southern, Boston | 37.65 to 39.65 |
| No. 2 southern, St. Louis | 33.72 to 35.72 |
| No. 2X, Virginia furnace | 33.25 to 35.25 |
| No. 2X, Virginia, Philadelphia | 38.09 to 40.09 |
| No. 2X, Virginia, Jersey City | 39.41 to 41.41 |
| No. 2X, Virginia, Boston | 37.83 to 42.83 |
| Gray forge, eastern Pennsylvania | 31.00 to 31.50 |
| Gray forge, valley, Pittsburgh | 29.96 |
| Low phosphorus, standard, valley | 44.00 to 45.00 |
| Low phosphorus, standard, Phila. | 46.82 |
| Low phosphorus, Lebanon furnace | 40.00 |
| Charcoal, Superior, base, Chicago | 38.50 to 42.50 |

### Silvery Iron

8 per cent base at furnace

| | |
|---|---|
| Jackson County, Ohio | $43.50 |
| Tennessee, Chicago delivery | 53.03 |
| Ohio brands, Chicago | 48.82 |

### Bessemer Ferrosilicon

Jackson County, Ohio, furnace

| | |
|---|---|
| 10 per cent | $53.00 |
| 11 per cent | 56.30 |
| 12 per cent | 59.60 |

## Coke

| | |
|---|---|
| Connellsville furnace | $5.00 to 5.50 |
| Connellsville foundry | 6.50 to 7.00 |
| Pocahontas furnace | 8.50 |
| Pocahontas foundry | 10.50 to 11.00 |
| New River furnace | 9.00 to 10.50 |
| New River foundry | 11.50 to 12.00 |
| Wise county furnace | 9.00 to 9.50 |
| Wise county foundry | 9.50 to 10.00 |

## Ferroalloys

| | |
|---|---|
| Ferromanganese, 80 per cent, delivered, domestic metal | $90.00 to 105.00 |
| Ferromanganese, 80 per cent, English, c.i.f. Atlantic port | 95.00 to 100.00 |
| Spiegel, 18 to 22 per cent furnace spot | 40.00 |
| Ferrosilicon, 50 per cent, contract delivered | 95.00 |
| Ferrosilicon, 50 per cent, spot delivered | 78.00 to 80.00 |
| Ferrotungsten, standard, per pound contained | $1.00c to 60.00c |
| Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, per pound contained, maker's plant | 16.00c to 16.50c |
| Imported ferrochrome, 6 to 8 per cent carbon | nominal |
| Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis | 5.00 to 6.75 |
| Ferro carbon-titanium, carloads, producers plant, per net ton | $200.00 |

## Semifinished Material

### BILLETS AND BLOOMS

(4 x 4-inch)

| | |
|---|---|
| Open-hearth, Pittsburgh | $43.50 |
| Open-hearth, Youngstown | 43.50 |
| Open-hearth, Philadelphia | 49.24 |
| Bessemer, Pittsburgh | 43.50 |
| Bessemer, Youngstown | 43.50 |
| Forging, Pittsburgh | 51.00 |
| Forging, Philadelphia | 55.74 |

### SHEET BARS

| | |
|---|---|
| Open-hearth, Pittsburgh | $45.00 to 47.00 |
| Open-hearth, Youngstown | 45.00 to 47.00 |
| Bessemer, Pittsburgh | 45.00 to 47.00 |
| Bessemer, Youngstown | 45.00 to 47.00 |

### SLABS

| | |
|---|---|
| Pittsburgh and Youngstown | $46.00 |

### WIRE RODS AND SKELP

| | |
|---|---|
| Wire rods, Pittsburgh | $57.00 |
| Grooved skelp, Pittsburgh | 2.45c to 3.00c |
| Universal skelp, Pittsburgh | 2.55c to 3.00c |
| Sheared skelp, Pittsburgh | 2.65c to 3.00c |

## Shapes, Plates and Bars

| | |
|---|---|
| Structural shapes, Pittsburgh | 2.45c |
| Structural shapes, Philadelphia | 2.80c |
| Structural shapes, New York | 2.83c |
| Structural shapes, Chicago | 2.83c |
| Tank plates, Pittsburgh | 2.65c |
| Tank plates, Chicago | 3.03c |
| Tank plates, Philadelphia | 3.00c |
| Tank plates, New York | 3.03c |
| Bars, soft steel, Pittsburgh | 2.35c |
| Bars, soft steel, Chicago | 2.73c |
| Bars, soft steel, New York | 2.73c |
| Bars, soft steel, Philadelphia | 2.70c |
| Bar iron, common, Philadelphia | 2.70c |
| Bar iron, common, Chicago | 2.68c |
| Bar iron, common, Cleveland | 3.75c to 4.00c |
| Bar iron, common, New York | 2.73c |
| Bar iron, common, Pittsburgh | 3.13c |
| Hard steel bars, Chicago | 2.50c to 2.65c |

## Rails, Track Material

| | |
|---|---|
| Standard bessemer rails, mill | $45.00 |
| Standard open-hearth rails, mill | 47.00 |
| Relaying rails, light, St. Louis | 35.00 to 40.00 |
| Relaying rails, Pittsburgh | 50.00 to 55.00 |
| Angle bars, Pittsburgh base | 2.45c |
| Angle bars, Chicago base | 2.75c |
| Light rails, 25 to 45, mills | 2.75c to 3.00c |
| Spikes, railroad, Pittsburgh | 3.65c |
| Track bolts, Pittsburgh | 5.50c |
| Track bolts, Chicago | 4.98c to 6.38c |
| Track spikes, Chicago | 4.03c |
| Tie plates, Chicago | 3.00c to 3.50c |

## Wire Products

(100 lbs. to jobbers, carloads; retailers, 10c more)

| | |
|---|---|
| Wire nails, Pittsburgh | $3.25 |
| Plain wire, Pittsburgh | 3.25 |
| Galvanized wire, Pittsburgh | 3.95 |
| Barbed wire, painted, Pittsburgh | 3.40 |
| Barbed wire, galvanized, Pittsburgh | 4.10 |
| Polished staples, Pittsburgh | 3.40 |
| Galvanized staples, Pittsburgh | 4.10 |
| Coated nails per count keg, Pitts. | 2.85 to 3.35 |

### Market Report Index


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## Chain, Piling, Strip Steel

| | |
|---|---|
| Chain, 1 in. proof coil, Pitts. | 6.75c |
| Sheet piling, base, Pittsburgh | 2.55c |
| Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100 inch and heavier, base per 100 pounds | 6.25c |

## Sheets

### SHEET MILL BLACK

| | |
|---|---|
| No. 28, open-hearth, Pittsburgh | 4.35c |
| No. 28, bessemer, Pittsburgh | 4.35c |
| No. 28, open-hearth, Chicago | 4.73c |
| No. 28, open-hearth, Philadelphia | 4.70c |

### TIN MILL BLACK

| | |
|---|---|
| No. 28, open-hearth, Pittsburgh | 4.35c |
| No. 28, bessemer, Pittsburgh | 4.35c |

### GALVANIZED

| | |
|---|---|
| No. 28, open-hearth, Pittsburgh | 5.70c |
| No. 28, bessemer, Pittsburgh | 5.70c |
| No. 28, open-hearth, Chicago | 6.08c |
| No. 28, open-hearth, Philadelphia | 6.05c |

### BLUE ANNEALED

| | |
|---|---|
| No. 10, open-hearth, Pittsburgh | 3.55c |
| No. 10, bessemer, Pittsburgh | 3.55c |
| No. 10, open-hearth, Chicago | 3.93c |
| No. 10, open-hearth, Philadelphia | 3.90c |

Full sheet schedule page 388.

## Tin Plate

(Per 100 lb. box)

| | |
|---|---|
| Tin plate, coke base, Pittsburgh | $7.00 |

## Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers Carloads

| | Black | Galv. |
|---|---|---|
| ⅜ to 3 in., butt steel | 57½ | 44 |
| ¼ to 1½ in., butt iron | 34½ to 24½ | 18½ to 8½ |

Full pipe schedule page 388.

## Boiler Tubes

| | |
|---|---|
| Steel, 3½ to 4½ inches, c. l. | 40½ off |
| Iron, 3½ to 4½ inches, c. l. | 12 off |

## Cast Iron Water Pipe

Without War Freight Tax

Class B Pipe

| | |
|---|---|
| Four-inch, Chicago | 69.10 |
| Six-inch and over, Chicago | 66.10 |
| Four-inch, New York | 73.30 |
| Six-inch and over, New York | 63.30 |
| Four-inch, Birmingham | 60.00 |
| Six-inch and over, Birmingham | 55.00 |
| Three-inch, Birmingham | 70.00 |

Class A pipe is $4 higher than Class B

## Hoops, Bands, Shafting

| | |
|---|---|
| Hoops, Pittsburgh | 3.05c |
| Bands, Pittsburgh | 3.05c |
| Hot rolled strip steel, Pittsburgh stamping quality | 3.30c |
| Cold finished steel bars, Pittsburgh base | 3.60c |

## Rivets

| | |
|---|---|
| Structural rivets, Pittsburgh | 3.90c to 4.00c |
| Boiler rivets, Pittsburgh | 4.10c |
| Rivets, ⅞ in. and smaller, Pitts. | 60 to 60 and 10 off |

## Nuts and Bolts

(Prices f.o.b. Pittsburgh)

### CARRIAGE BOLTS

(⅜ x 6 inches, smaller and shorter)

| | |
|---|---|
| Rolled thread | 60 off |
| Cut thread | 50-10 off |
| Larger and longer | 50-10 off |

### MACHINE BOLTS

(⅜ x 4 inches, hot pressed nuts)

| | |
|---|---|
| Rolled thread | 60-10-10 off |
| Cut thread | 60-10 off |
| Larger and longer | 60 off |
| Plow bolts Nos. 1, 2 and 3 heads | 50-10-5 off |
| Other style heads | 50-10-5+20% |
| Stove bolts in packages | 75-10-10 off |
| Stove bolts in bulk | 75-10-10-2½ off |
| Cold pressed semifinished hexagon nuts ⅝ in. and larger | 70-10 off |
| Cold pressed semifinished hexagon nuts ⅞ in. and smaller | 80 off |
| Gimlet and cone point lag screws | 65 off |

### NUTS

(Up to 1¼ and 1½ inches inclusive)

| | |
|---|---|
| Hot pressed, square blank | $3.25 off |
| Hot pressed, square tapped | 3.00 off |
| Hot pressed, hexagon blank | 3.25 off |
| Hot pressed, hexagon tapped | 3.00 off |
| Cold pressed, square tapped | 2.85 off |
| Cold pressed, square blank | 3.10 off |
| Cold pressed, hexagon tapped | 2.85 off |
| Cold pressed, hexagon blank | 3.10 off |

## Prices Present and Past

**Representative market figures yesterday, one month ago, three months ago and one year ago**

**Prices given in this table are those ruling on the largest percentage of sales, at the dates named**

| | Prices Feb. 2, 1921 | Average prices 1921 Jan., | 1920 Nov., | 1920 Feb., |
|---|---|---|---|---|
| **PIG IRON—** | | | | |
| Bessemer, valley, del., Pittsburgh | $31.96 | $33.96 | $42.35 | $43.15 |
| Basic, valley, delivered, Pittsburgh | 29.96 | 31 29 | 39.46 | 43.65 |
| *No. 2 Foundry, val. del. Pittsburgh | 30.96 | 32.90 | 42.96 | 42.40 |
| *No. 2 Foundry, Chicago | 30.00 | 32.75 | 42.75 | 42.25 |
| Lake Superior charcoal, Chicago | 38.50 | 40.25 | 58.50 | 55.65 |
| Malleable, valley | 30.00 | 32.00 | 40.35 | 43.00 |
| Malleable, Chicago | 30.50 | 33.25 | 43.00 | 42.75 |
| *Southern, No. 2, Birmingham | 29.00 | 33.00 | 39 50 | 40.00 |
| *Southern Ohio, No. 2, Ironton | 33.00 | 34.00 | 44.00 | 43.00 |
| Basic eastern del. eastern Pa | 31.50 | 33.40 | 44.55 | 40.50 |
| **No. 2X, Virginia furnace | 34.25 | 34.50 | 45.75 | 42.75 |
| **No. 2X, eastern del., Philadelphia | 32.50 | 35.00 | 46.75 | 45.00 |
| Gray forge, valley, del., Pittsburgh | 30.96 | 31.96 | 42.21 | 41 40 |
| Ferromanganese, 80 per cent, delivered | 105.00 | 101.25 | 153.00 | 160.00 |
| **SEMIFINISHED MATERIAL—** | | | | |
| Sheet bars, bessemer, Pittsburgh | 45.00 | 47 00 | 56.25 | 65.00 |
| Sheet bars, open-hearth, Pittsburgh | 45.00 | 47 00 | 56.25 | 65.00 |
| Billets, bessemer, Pittsburgh | 43.50 | 43.50 | 52.50 | 61.25 |
| Billets, open-hearth, Pittsburgh | 43.50 | 43.50 | 52.50 | 61.25 |
| **FINISHED MATERIAL—** | | | | |
| Steel bars, Pittsburgh | 2.35 | 2.35 | 3.00 | 3.85 |
| Steel bars, Chicago | 2.73 | 2.73 | 3.16 | 2.62 |

| | Prices Feb. 2, 1921 | Average prices Jan., 1921 | Nov., 1920 | Feb., 1920 |
|---|---|---|---|---|
| **FINISHED MATERIAL—Continued** | | | | |
| Iron bars, Philadelphia | $2.70 | $3.19 | $4.40 | $3.75 |
| Iron bars, Chicago mill | 2.68 | 2.70 | 3.75 | 3.44 |
| Beams, Chicago | 2.83 | 2.83 | 3 08 | 2.72 |
| Beams, Pittsburgh | 2.45 | 2.45 | 3.00 | 3.15 |
| Beams, Philadelphia | 2.80 | 2.80 | 3.40 | 3.75 |
| Tank plates, Pittsburgh | 2.65 | 2.65 | 3.00 | 3.70 |
| Tank plates, Chicago | 3.03 | 3.03 | 3.38 | 3.92 |
| Tank plates, Philadelphia | 3.00 | 3.00 | 3.55 | 4.25 |
| Sheets, blk., No. 28, Pittsburgh | 4.35 | 4.35 | 6 05 | 6.00 |
| Sheets, blue anld., No. 10 Pittsburgh | 3.55 | 3 55 | 4.95 | 5.50 |
| Sheets, galv., No. 28, Pittsburgh | 5.70 | 5.70 | 7.35 | 7.00 |
| Wire nails, Pittsburgh | 3.35 | 3.35 | 4.00 | 4.30 |
| **COKE—** | | | | |
| Connellsville furnace, ovens | 5.00 | 5 15 | 8.35 | 6.00 |
| Connellsville foundry, ovens | 6.50 | 6.50 | 9.35 | 7.00 |
| **OLD MATERIAL—** | | | | |
| Heavy melting steel, Pittsburgh | 15.00 | 15.00 | 24.00 | 28.15 |
| Heavy melting steel, eastern Pa | 14.50 | 15.00 | 23.80 | 25.75 |
| Heavy melting steel, Chicago | 15.50 | 15.25 | 18.50 | 25.05 |
| No. 1 wrought, eastern Pennsylvania | 20.50 | 20.50 | 29.85 | 36.15 |
| No. 1 wrought, Chicago | 16.00 | 15.65 | 19 55 | 30.75 |
| Rerolling rails, Chicago | 16.50 | 15.80 | 24.15 | 34.65 |

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon. †Tidewater.

# Pig Iron Market Still Sagging

## Valley No. 2 Sold at $29 and $28 Is Quoted—Bessemer and Basic Lower—Southern and Eastern Grades Softer—Better Buying Develops but Principally in East—Shipments Show Some Increase

Philadelphia, Feb. 1.—Buying of foundry iron has improved considerably the past week in this territory. Some of the big users are showing interest. Large pipe makers bought several thousand tons and numerous smaller lots were placed. All this iron is for shipment beginning immediately. The total tonnage however is not enough to go around and if business does not improve further, two of the few remaining active eastern Pennsylvania stacks will cease production shortly. Competition has brought out prices where some active stacks say they are losing money. The market level on eastern Pennsylvania iron now, is $30 furnace for No. 2 plain (1.75 to 2.25 silicon), and this figure has been shaded slightly. Western Pennsylvania foundry iron has been offered at prices which are competitive on eastern business. Numerous feelers by consumers are out including one for 5000 and one for 2000 tons both foundry iron. Written inquiries total around 1000 tons. While Virginia No. 2 has bene sold for prompt shipment from furnace stock piles at $30 and $32 furnace, $36 base would be necessary to induce idle Virginia furnaces to resume. Malleable now could be had $30.50 to $31 eastern Pennsylvania furnace and gray forge at $30 eastern Pennsylvania furnace but no business has been done in these grades. The only sale of low phosphorus involved a round tonnage to a nearby point. The only sale of basic involved a considerable tonnage at $30 furnace also for shipment outside this district. There is little basic demand and it is believed it would not be necessary to pay higher than $30 delivered eastern Pennsylvania on an attractive tonnage.

### Some See More Buying

Chicago, Feb. 1.—With prices of pig iron growing weaker each week, some sellers report slightly more tonnage moving. Most sales are for the purpose of tempering mixtures and close adherence to analysis is insisted on. This indicates that iron on hand is running low in many cases. Tonnages are small for the most part and for prompt delivery. An inquiry for 200 to 400 tons containing 12 to 14 per cent silicon is current. An important producer of pig iron at Chicago is quoted $31, furnace, for 1.75 to 2.25 silicon, while a steel works stack offers the same grade at $30, furnace, for February delivery, but is not open to orders beyond that period. Tonnage offered by the Illinois Steel Co. from its Bayview stack, which hung over the market for a considerable time, has been taken by regular customers in sufficient amount to cover first quarter production. This interest has been following the market as to price. Resale iron is available at $29, Chicago, and probably can be obtained as low as $28. Southern iron is quotable all the way from $30 to $38.

### Shipments Are Increased

Cleveland, Feb. 1.—Increased shipping instructions from consumers are reported by a number of furnaces in this district dating from the latter part of January. In some cases this increase has amounted to about 25 per cent. This expansion of shipping demand, however, is not considered of great significance, and it is looked upon as a natural reaction from the low point to which foundry operations were reduced during the recent holiday

## Composite Market Average

**Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products.**

**Yesterday, One Week, One Month, Three Months, One Year and Seven Years Ago**

| February 2, 1921 | January 26, 1921 | January, 1921 | November, 1920 | February, 1920 | February, 1914 |
|---|---|---|---|---|---|
| $50.78 | $51.28 | $51.73 | $63.75 | $65.63 | $23.52 |

and inventory-taking period. In some cases the furnaces have stipulated shipments of high priced contracts by agreeing to alternate in delivering equal quantities at the contract price and at the present market, thus averaging the commitment. It is notable that in the increased requests for shipments practically nothing has come from the foundries serving the automobile industry. Sales are few and inquiries equally so. Most of the limited tonnage placed is going around $30, furnace base, although Cleveland makers in some cases have taken small orders at $32, base. At the same time Cleveland iron for shipment outside this district has been sold at $30, Cleveland base. One lake producer in the week sold 400 tons at $30 to $31, base, the last transaction being at the lower price. Valley iron has been quoted at $29, base furnace, or $30.96, Cleveland basis. It is indicated, however, that this figure can be shaded and this is expected to be the case on a lot of 1000 tons for which the Standard Sanitary Mfg. Co. now is inquiring for Pittsburgh delivery. A reduction of $5 a ton has been put in effect by Jackson county producers of silvery iron and bessemer ferrosilicon. This makes the price of 8 per cent silveries $43.50 and of 10 per cent ferrosilicon $53, furnace, with the usual differentials for the other grades.

### More Tonnage Is Wanted

Pittsburgh, Feb. 1.—Enlivening what otherwise would be practically a dead pig iron market, the Standard Sanitary Mfg. Co., this city, is issuing additional inquiries. It is stated that for its Pittsburgh plant at least 1000 tons of No. 2 foundry (1.75 to 2.25 silicon) are wanted and it also requires an additional 750 tons of No. 2 Virginia or sotuhern iron for its Louisville, Ky., plant. This company's recent purchases of 3000 tons of No. 2 southern iron at $27.50 Birmingham, were distributed among three or four southern furnaces. While most of the makers of northern foundry are holding at $32 base furnace, the Standard company has quotations below that figure and several interests are now known to be quoting $29 valley furnace. A few companies are going below the $30 level and among them a large valley interest which produces this grade of iron in excess of its own needs. It has quoted $29 on this particular inquiry as well as other smaller ones and recently has sold several small lots involving 50 tons or more at that level. In fact one small lot recently was sold at $28.75 furnace and some resale iron is understood to have moved below that. All this is indicative of the fact that if a tonnage inquiry were issued the $30 level in all probability would be shaded. Today's demand mainly is for small lots for prompt shipments. Various sales of limited tonnages of No. 2 foundry are reported at $30 furnace and one inquiry for 275 tons is current from a radiator manufacturer, not the American Radiator Co., on which a price of $32 furnace has been quoted. Sales of the steelmaking grade, basic and bessemer, are even more limited and it is stated that inquiries never were so few. Most of the furnace interests here continue to quote $30 to $32 furnace respectively, although $29 basic has been done on several small lots booked by a southern Ohio producer. Some resale iron continues to be marketed under these figures. On 500 tons of bessemer sold in the Wheeling district a quotation of $30.60 nearby furnace failed to take the business which was placed at $31.10, delivered, or near $29, valley basis. One interest reports that while it sold more iron in January than the average for the preceding three months. The Carnegie Steel Co. has 48 blast furnaces in blast on Jan. 31, having blown in the last of the Carrie group on Jan. 28. The average prices at which basic and bessemer iron were sold in January, as compiled by W. P. Snyder & Co., were $30 and $32 furnace respectively.

### Demand Improves In East

New York, Feb. 1.—While written inquiries for pig iron are scarce, actual demand is improving, and pig iron salesmen are developing fair-sized orders in their rounds of the consumers. Practically all of these are for prompt shipment. The biggest order placed involved about 1500 tons of foundry iron for a Bridgeport, Conn. consumer. There have been other orders for lots of a few hundred tons here and there. Generally, the market on eastern Pennsylvania foundry iron is $30, base, furnace, although there has been some business in small tonnages at 50 cents to $1 higher. Although these prices are minimum on the general run of business, somewhat lower has been quoted on mixed grades on furnace yards which the makers are anxious to dispose of.

### Inquiries and Sales Increase

Buffalo, Feb. 1.—Increase in inquiry and sales is causing a flurry in the market. One maker says that a total of 4600 tons has been placed on its books during the past week. The price said to have been obtained for this iron, including one 1500-ton sale, was $30 for No. 2 plain (1.75 to 2.25 silicon) in lots over 1000 tons, and $32 for that grade in less than 1000 ton lots. This maker states that iron will not be sold under $30 at present costs, and declares that the bottom has been reached. This attitude is borne out by the policy of radiator and boiler men following a recent meeting in New York City, who are reported to hold a like opinion and have determined to buy. This same maker reports inquiry for 25,000 to 30,000 tons, considerable of which is from boiler and radiator interests. Another maker reports sales of approximately 300 tons, some of which were made at $32 and some at $30 for the base grade of foundry. It has inquiry for several thousand tons. Another maker reports sales of between 150 and 200 tons at $32 and $33 for No. 2 foundry. A furnace near this district sold 1000 tons for New England delivery at $30, base furnace. A 1600-ton inquiry for foundry and a 500-ton inquiry are reported.

### Price Softness Noted at St. Louis

St. Louis, Jan. 31.—No improvement is noted in the pig iron market, and prices are softening. Two Southern makers are quoting $30 base for No. 2 southern (1.75 to 2.25 silicon). One other interest still is asking $35, while another has not receded from its quotation of $42. Neither of the latter has sold iron recently at these prices. Iron is being offered by Chicago and other districts on a basis more advantageous to local users than $30, Birmingham. Basic iron is offered at $28 and $29, furnace, for delivery through the first half. However, no one is buying and few inquiries are reported. An interest on the Pacific coast put out an inquiry for 100 tons of foundry iron, and was offered the tonnage at $30, base, by a local agency. The inquirer stated he could do better elsewhere. Aside from several small resales no business was done in the past week. A canvass of plants of leading consumers, discloses that yard stocks are not heavy. Orders are being placed slowly with foundries, mills and machine shops. One interest specializing in gray castings has not had a new order since Dec. 27. Similar reports are made by the industry generally.

### Prices Weaken in New England

Boston, Feb. 1.—With scattered buying last week, came further reduction in prices from most districts usually supplying New England with pig iron. The Crane Co., Bridgeport, Conn., came into the market for prompt iron, and it is understood that from 1200 to 1500 tons were brought at a delivered price close to $30. A machine tool builder of Fitchburg, Mass., was in the market for 200 tons of No. 2X (2.25 to 2.75 silicon), and although no sale has been made the bids received indicate some new low furnace prices in various districts. Several of the furnaces in the Buffalo district quoted $30, base. One eastern Pennsylvania furnace quoted $30, base, and an Ohio interest quoted $28. This Ohio maker openly is offering iron in New England at $28, base. The Virginia Iron, Coal & Coke Co., Roanoke, Va., quoted $38, base, furnace, on several tonnages offered during the week and other interests in Virginia apparently are equally indifferent to business in this district as nothing below $35, furnace, has come to light. It is understood that most Birmingham furnaces would accept orders at $30, furnace, or $40.66, delivered by rail, and probably at less. A Massachusetts consumer bought 100 tons of special analysis Birmingham iron. A western Pennsylvania furnace with a freight rate practically the same as Buffalo sold two small lots in Connecticut at $35, furnace. One of the principal eastern Pennsylvania furnaces dropped to $32, furnace, and another eastern Pennsylvania furnace is understood to be on a $30 base. Sales have not been large, although the number of scattered orders shows some improvement over a week ago. One lot of two cars of resale No. 2X was sold at $30, furnace, or $35.46, delivered.

### Small Lots Selling In South

Birmingham, Jan. 31.—Only a few car loads of pig iron are being sold, even with quotations down to $30, for No. 2 foundry (1.75 to 2.25 silicon). No verification is obtainable that $29.50 or $28 has been quoted by southern furnace interests, though it is possible that resales have been made at such prices. One of the smaller companies has sold about a month's output but the general business of the district is far from satisfactory. All new orders are being

filled from current production. Output has been reduced further in this district. The Alabama Co., Woodward Iron Co., Sloss-Sheffield Steel & Iron Co., and the Republic Iron & Steel Co. have one blast furnace each in operation on foundry iron while the Tennessee Coal, Iron & Railroad Co. has two furnaces on foundry, one on ferromanganese and six on basic, and the Gulf States Steel Co. one on basic. Not more than a month's make is on the yards of this district. A number of inquiries have been received but there is no confidence that the market is to become more active immediately.

## Strip Buying Expected

Pittsburgh, Feb. 1.—Makers of hot and cold-rolled strip steel report only a few orders are being booked. However, manufacturers are more encouraged than they were 10 days ago. Small lots of both grades are asked for but the demand for the hot-rolled product is slightly greater, although in both cases only absolute requirements are being filled. Reports of automotive plants resuming operations encourage strip makers to believe requests from this quarter will be more numerous from now on. Absolutely no contracting is being done for future requirements and present operations do not exceed 40 per cent of capacity. Prices remain firm at 3.30c, base, Pittsburgh, on hot-rolled and 6.25c, base Pittsburgh, on cold rolled strip steel.

## Rail Freights Bar Low Priced Belgian Steel

New York, Feb. 1.—Belgian steel continues to be obtainable here at figures which are slightly less than those on American steel delivered at tidewater points. However, the freight rates wipe out this advantage as soon as important inland consuming points are reached. Belgian open-hearth rerolling billets can be had at $42, duty paid, New York, while Belgian bars can be had at 2.65c to 2.75c, base, duty paid, New York. Prices on other Belgian finished products bear about the same ratio to American prices. Small sales of Belgian steel were made in this country about two months ago, and the material involved already has been delivered. No sales have been transacted since and the increasing value of the Belgian franc is making it more difficult for Belgian makers to compete for business at tidewater points in this country.

## Organizes Sales Company

At a recent meeting of officials of the Wheeling Steel Corp., Wheeling, W. Va., a sales company to be known as the Wheeling Steel Products Co., was formed with a capital of $1,000,000. W. H. Abbott, vice president of the Wheeling Steel Corp., is president of the new organization which will devote its efforts to selling all of the products of the parent corporation both at home and abroad. H. D. Westfall and John Duncan are vice presidents. Other meetings are to follow at which the organization will be perfected and other officers elected.

# Coke Market Is Lifeless

### Prices of $5 to $5.75 Still Apply on Spot Furnace, but Business Is Dullest in Years—Large Producers Not Operating

Pittsburgh, Feb. 1.—But for the relatively high beehive coke production of the H. C. Frick Coke Co., it is estimated that the rate of output in the Connellsville region would be around 30 per cent of normal. One of the larger interests with headquarters in Pittsburgh states that it is not operating, is making no contracts, and is not shipping or selling. Suspensions on contracts have increased and some of the larger steel companies are not taking any coke while others take but small tonnages. Various makers refuse to keep ovens lighted as they claim that the price of coke is below cost of production. All interests agree that business never was so dull both from a consuming and producing standpoint. Furnace coke was sold in the week only in small lots, and while prices from $4 to $4.50, ovens, are reported they apply to "sacrifice tonnages" so that $5 to $5.25 continues to be the spot market price. One of the larger independent coke oven operators in Uniontown, Pa., stated recently that it has not sold a pound of coke below $5, ovens. The minimum has been placed by some at $5.50 to $5.75. On contract furnace coke, the $29 price on basic makes the coke price $5.80, on a 5 to 1 sliding scale basis, and these contracts name a minimum of $5.50 to $5.75. No new contracts are being booked, operators doubting that interest could be aroused even on a 5½ or 6 to 1 basis. On foundry coke a little spot tonnage continues to move from time to time to satisfy the limited demand. The spot market is considered quotable at $6.50 to $7, although $6 also has been heard on small distress tonnages. While no contracts are being booked for this grade, the contract price of $7.50 is considered nominal. Production in the Connellsville district estimated by the *Connellsville Courier* for the week ended Jan. 22, is 170,060 tons as compared with 170,180 tons the preceding week.

#### Demand Still Sluggish

Boston, Feb. 1.—The New England coke situation is featureless. Beehive coke continues to undersell by-product from $2 to $3, but the demand is so light that local producers do not fear that great inroads will be made in their trade. A Connecticut consumer bought 200 tons of beehive foundry coke at $6.25, Connellsville, or $12.50, delivered. The New England Coal & Coke Co., Everett, Mass., reports a better sentiment and a slight increase in orders for delivery from consumers.

#### By-Product Price Reduced

New York, Feb. 1.—The Seaboard By-Products Coke Co., has reduced its price on by-product foundry coke to $6.50, Connellsville, for February, and this price will apply to all deliveries on contracts during the month. This interest booked more tonnage during the past week both for spot and contract shipments. Standard beehive foundry coke now is obtainable at $6 to $7, Connellsville, the price depending largely on the brand. In some cases, the $6 price has been shaded. Spot furnace coke is quoted at $5 to $5.25, Connellsville. On the whole, demand for coke is rather quiet.

#### Plants Have Large Reserves

St. Louis, Jan. 31.—Businss in coke is confined to small, scattered sales for spot shipments. Consumers' stocks are ample to permit of operations at the present rate for some time. Several of the large plants in this district have heavier reserves than at any time since the scarcity caused by the war. The trend of prices is downward, and the belief prevails that there will be further readjustments. For 72-hour foundry coke the prevailing spread is $6.75 to $7.50, while $5.50 to $5.75 is being done for furnace grades. Nothing is being offered under $8 on foundry fuel for forward delivery. The St. Louis Coke & Chemical Co. is now shipping its product, and is in the competitive market. It plans to blow in its first blast furnace on or about Feb. 1.

#### Prices Lowest in Three Years

Birmingham, Ala., Jan. 31.—The coke market continues quiet, and further weakness is indicated in quotations. Foundry coke is reported at $8.50, and furnace, $6.50. These are the lowest prices in more than three years. By-product coke oven plants are in operation, though some of them have reduced output. A few export shipments in the past few weeks have aroused interest, expected improvement in the domestic market has not developed.

## Plans Erection of Auto Accessories Plant

Bids will be called within 30 days by Carl C. Ade, Rochester, N. Y., architect, for erection of a plant, consisting of two units, for the Wayland Specialty Mfg. Co., Inc., Wayland, N. Y., manufacturer of automotive accessories and specialties. The two buildings will be 60 x 200 feet each, but the main factory unit will be 2-stories and the other 1-story. Forty feet in the front of the latter building will be used as a power plant, while the remainder of the building, or 60 x 160 feet, will be utilized for a foundry, which will be devoted to small work. The Wayland company owns a 15-acre site. A railroad siding will run between the two plant buildings, and to the north will be another spur, elevated 12 feet, for fuel, coke and metals. In planning the building the company has taken into consideration the future expansion possibilities. The company besides maintaining an office at Wayland, N. Y., has an office at 907-909 Ashland block, Chicago. Officers of the company are: President, Charles L. Clark; secretary, Edward H. Perkins, and treasurer, C. S. WeMett.

# Bar Market Remains Dull

**Slight Improvement in Specifications for Steel Bars Only Bright Spot in Trade—Buyers Seeking Concessions but Shading Unverified**

Chicago, Feb. 1.—While demand for soft steel bars has not changed much, many producers feel that a better sentiment exists and in a few instances more orders are being taken. Specifications are somewhat freer than formerly, but in general buyers are not anxious to commit themselves for more material, most buying being for immediate delivery for current needs. No other quotation than 2.73c, Chicago mill, is reported.

Mills producing bar iron are operating only part time and some are down. Inquiry has dwindled to practically nothing and the business placed is insufficient to maintain operations. Observers familiar with this market for many years agree conditions never have been worse. In the absence of business to test quotations, no other figure is reported than that applying on former business, 2.68c, mill.

The situation in hard steel bars rerolled from rails is unchanged with all mills idle and no inquiry. The Inland Steel Co. will resume operation of its hard bar mill at Chicago Heights, Feb. 7, to clear up a small accumulation on which delivery is overdue. No quotation can be defined under present conditions, but former prices were 2.50c to 2.65c, mill.

### Bar Iron Demand Better

New York, Feb. 1.—With iron bars now on a level with steel bars, eastern bar iron makers report a better amount of inquiry. During the past few days makers generally have accepted 2.35c, Pittsburgh, and they assert this has brought out a better demand, especially from the jobbers. The market generally is far from active, and the mills continue to operate at around 20 per cent of capacity.

### Demand at Low Ebb

Pittsburgh, Feb. 1.—Manufacturers of cold-finished steel bars report that business never was quite so dull as at present. They are cleaning up old orders but state that if they could obtain releases on the large suspended tonnages held on their books their business would be almost normal. Immediate deliveries now are possible, whereas three or four months ago the best deliveries were deferred six to 12 months. The present condition was brought about by the fact that for every ton of material ordered, 5 tons were held up or canceled. The railroads are not making purchases and while some of the mine car manufacturers are specifying on cold-rolled axles and a few industrial plants are buying shafting, the tonnages involved are relatively small. While fair demand is anticipated from the automobile manufacturers, most of these were caught with doubled inventories when the industrial slump began, hence this demand will not be as large as ordinarily would be expected. It is stated that they will have to buy fill-in tonnages but this will not start for several weeks. The agricultural implement business which ordinarily is booming at this time, likewise is furnishing no demand and the machine shops which are allied more or less with the automotive trade, furnish but a limited demand. Makers state that with bars at 2.35c, base, Pittsburgh, they are unable to offer concessions on the 3.60c, base, Pittsburgh, price now ruling on their product.

### Eastern Business Still Restricted

Philadelphia, Feb. 1.—Steel bar business continues small. There are rumors of price shading, but they do not appear well founded.

### Buyers Seek Concessions

Pittsburgh, Feb. 1.—While numerous requests for concessions under the 2.35c, base, Pittsburgh, price on merchant steel bars have been received, no tendency to shade that figure is reported in this district. Because operations among the independent mills are maintained on a greatly curtailed schedule, however, it is not known how long this will continue and the possibility is that a sizable tonnage would bring a lower price. Present demand is extremely limited. Quite a number of consumers are making inquiry for refined iron bars but in many cases the inquiries do not develop into orders. Piecemeal business only is being transacted and this represents spot needs. There is no tendency to contract for future requirements. Prices are quoted on refined iron bars according to the makers' measure of refinement. These vary from 3.50c to 6.50c, base, Pittsburgh. While common iron bars are not made in this territory, the recent reduction to 2.68c, Chicago, or 3.06c, delivered Pittsburgh, did not result in stimulating any business and demand continues at a low ebb.

## Band Business Light

Pittsburgh, Feb. 1.—Absolute needs in hoops and bands only are involved in the orders now being placed. This means that the largest orders are for one carload or two. Compared with the normal business for this time of the year, trading is extremely light. New inquiries are few and no contracting for future supplies is under negotiation. Average operations for the mills will not exceed 40 per cent and the price remains firm at 3.05c, base, Pittsburgh.

## Bolt Buyers Ignore Cuts

Pittsburgh, Feb. 1.—Despite recent reductions on nuts, bolts and rivets new business still is slack. Makers here state many jobbers were ready to place orders before the decline of 10 to 15 per cent, but these now are inclined to hold off and they only are ordering absolute needs which are offered in exceedingly small lots. Operations continue at 70 to 90 per cent of capacity, however, and where old orders have been practically cleaned up, various sizes are being made for stock. In the case of rivets, jobbers are ordering in parcel post lots and while the prices now generally quoted are 4.00c, base, Pittsburgh, for structural and 4.10c for boiler rivets, it is understood that on an inquiry involving a fair tonnage 3.90c and 4.00c, respectively, would be quoted. On the smaller sizes of rivets various prices are heard, but 60 per cent off is generally named. Some makers still are asking 50 and 10 off, with no takers, while others have gone as low as 60 and 10 off, without booking any large tonnages.

### Join In Cutting Prices

Philadelphia, Feb. 1.—Eastern makers have adopted the cut in nut and bolt prices which recently were made by Cleveland makers and now are quoting 60, 10 and 10 off on ⅜ x 4 inches and smaller and shorter machine bolts with hot-punched nuts and rolled threads. All other prices on nuts and bolts are reduced accordingly. The cut was expected to bring out orders for filling in stocks of jobbers and other buyers but not much along this line has resulted. The cut prices have been applied to contracts.

### Demand Is Slack

Chicago, Feb. 1.—Announcement of lower prices on bolts and nuts a week ago has not had any effect on buying, and while some business is offering, the general condition is far from satisfactory. The new price schedule, which really was simply putting into effect figures quoted by many makers, as shading of the prevailing level, was the rule rather than the exception.

## Spot Alloys

**Bring Lower Prices but Sales Are Few —Demand Is Poor**

New York, Feb. 1.—The ferroalloys markets show little change. Some of the alloy steel makers are figuring on their 1921 requirements and a few contracts have been placed, but there has been no real buying movement. The contract price for ferrochrome containing 60 to 70 per cent chromium and 6 to 8 per cent carbon has been establishd at 16 to 16.50 cents a pound contained. The United Alloy Steel Co., Canton, O., has awarded its contract for 1921, involving several thousand tons, to the United States Ferro Alloys Corp.

The United States Steel Corp. has not closed for its 1921 ferrosilicon requirements, on which $95 was quoted. At the same time, much lower prices have recently been made on prompt shipments. Sellers who have quoted $80, delivered, on prompt carloads, have lost the business. First hands have taken orders as low as $76, freight allowed. The prompt market may be quoted $78 to $80.

Ferrovanadium of low silicon and nickel contents has been quoted down to $6.75 a pound contained and the range of prices is $5 to $6.75 a pound contained. Ferrotungsten business remains extremely quiet at 55c to 60 cents a pound contained.

Business was lacking the past week in ferromanganese. Prices continue nominal, $125 delivered, on domestic; $100 tidewater, on English; and $90 to $100, delivered, on resale. Spiegeleisen has been sold first hand at $40, furnace, for

20 per cent and this indicates the market.

### Will Hear Dumping Case

Philadelphia, Feb. 1.—The allegation that importers were selling English ferromanganese in this country in violation of the anti-dumping law will be heard at 10 o'clock Wednesday morning at the federal trade commission office.

### Orders Continue Small

Pittsburgh, Feb. 1.—The recent reduction of $10 per ton on English 76 to 80 per cent ferromanganese has not stimulated buying. The price on this material is $100, c.i.f. Atlantic ports, while the domestic ferromanganese is quoted at $100, furnace. Resale lots of both grades appear and the impression prevails that desirable lots could be picked up at a price around $90. Some interest is developing in 50 per cent ferrosilicon. One inquiry recently was for 150 tons of 75 per cent material. On the former a price of $95 generally is quoted although resale lots are said to be offered at around $80. On the 75 per cent ferrosilicon, prices quoted vary from $160 to $175, furnace.

## Alloy Steels Lower

Cleveland, Feb. 1.—Prices of alloy steels are showing a softening tendency especially in the hot rolled product in which leading producers recently have made reductions of from ½ to 1 cent per pound. Unspecified contracts expiring Jan. 1, 1921, have been extended over the first quarter and half on the lower basis of prices. Large producers of hot rolled alloy steels now are quoting 3½ per cent low nickel steel containing 1½ per cent nickel and 0.60 carbon at 5.00c Pittsburgh and chrome-vanadium steel 0.90 chromium and not under 0.15 vanadium, at 6.50c Pittsburgh.

## Reduces Sheet Wages

Pittsburgh, Feb. 1.—The American Sheet & Tin Plate Co. has reduced the wage rate of its hot mill men in its various plants effective Feb. 1, 10 per cent. This follows the adjustment made Jan. 1 by the independent sheet mills which reduced their rate to hot mill employes 19½ per cent in accordance with their bi-monthly scale agreement with the Amalgamated Association of Iron, Steel and Tin Workers.

## Navy Steel Bids Uniform

Washington, Feb. 1.—Opening of bids by the navy department on 3100 tons of plates revealed three interests seeking the business, the Carnegie Steel Co., the Cambria Steel Co. and the Worth Steel Co. All bid 2.65c, Pittsburgh, with full extras. On 2000 tons of shapes there were five bidders, the Carnegie Steel Co., the Cambria Steel Co., the Jones & Laughlin Steel Co., the Lackawanna Steel Co. and the Phoenix Iron Co. All of the bids were for 2.45c, Pittsburgh, with card extras.

# Plate Demand Is Better

**Improvement Noted as Some Tonnages Appear for Cars—Eastern Mills Doing Better—Shading Reports Persist**

New York, Feb. 1.—Demand for plates has improved in this district. The largest job involves three car floats placed by the New York Dock Co., with the American Bridge Co., to be built by the Federal Shipbuilding Co. This contract calls for about 3000 tons of plates and shapes. The American Locomotive Co., is understood to have placed about 130 tons of sheared tank plates. The Standard Oil Co., of New Jersey is inquiring for approximately 500 tons of tank plates. No action yet has developed with respect to the inquiry from the Texas Co., for 100 tons of ship plates for April delivery. It is reported that 2.65c, base, Pittsburgh, was shaded in connection with one attractive lot for export, but in general 2.65c appears to be maintained. As a result of the accumulated orders of the past few weeks, some of the eastern mills which have been inactive will go into operation soon.

### More Orders Booked in East

Philadelphia, Feb. 1.—While sizable plate orders are lacking the number of small orders has increased and some mills report more business booked in the past week than in any week for some months. There are persistent reports of price shading and there appears to be some foundation for rumors in some cases, but the only instance actually known where an eastern mill quoted a price equivalent to 2.50c, Pittsburgh, base, was for shipment outside of this district. This involved 400 tons for the Pacific coast. Most eastern mills are operating but not nearly at full rate, and continuance of operations is not assured. All makers which bid on 3100 tons of plates for the League Island navy yard quoted 2.65c, base, Pittsburgh. It is possible that lower prices which have been quoted on secondhand plates and on some stock plates at mills are responsible for rumors of price shading. Prices ranging from 2.20c to 2.40c and even 2.00c, in some cases have been quoted.

### Market Has Better Tone

Pittsburgh, Feb. 1.—While a better tone exists in the plate market, new inquiries continue light and orders are few. Specifications likewise continue limited. Operations among the independent mills are on a slightly better scale and this represents accumulations of orders which the mills hope will be followed up by additional specifications. Considerable government business is current. With what new business develops from time to time, together with its old orders, the Carnegie Steel Co., continues to operate at a high rate. The prevailing price of 2.65c, base, Pittsburgh, continues to be named in all cases and reports of concessions are difficult to verify.

### Need Plates for Cars

Chicago, Feb. 1.—Some tonnage of plates will be required for cars recently ordered by the Louisville & Nashville railroad, although the greater number of those ordered are of a type which will not require plates. The coal cars and gondolas, which take more of this form of steel than the others, will be built at a Mobile plant, which makes it unlikely that Chicago mills will be able to obtain the plate tonnage. Demand from boiler and tank makers is slack and not much business is available from those sources. The Inland Steel Co. has started production on its plate mill this week with sufficient business to run it for about a fortnight.

## Pile Wire

**For First Time in Years—Shading on Galvanized Reported**

Chicago, Feb. 1.—Dullness marks the wire and nail market with orders considerably less than production, and the total volume of business much under what usually is received at this season. Producers have begun to pile barbed wire and some sizes of nails, this being possible for the first time in several years. Ordinarily stocks have been carried, but demand has been so insistent since the early part of the year that nothing could be accumulated. Activity in poultry netting is noted and prompt shipments of this material are being urged.

### Mixed Carloads Ordered

Pittsburgh, Feb. 1.—Some of the jobbers of wire and wire products are ordering mixed carloads of galvanized wire, fencing, nails, etc. A few straight carload orders continue to be received by the various mills but sizable business is not developing as fast as was anticipated. Concessions on galvanized fencing wire from the 3.95c, Pittsburgh, level and below the usual differentials to fence manufacturers are reported by eastern independent mills. One large interest reports that it quoted 3.95c but the order was placed elsewhere, evidently on the basis of price. Most of the business developing at present is coming from jobbers who are balancing their stocks. The Jones & Laughlin Steel Co. now has joined the other makers in withdrawing outstanding quotations on large head nails. These now are quoted on a net price basis.

### Concessions Reported

Cleveland, Feb. 1.—Various reports are current of sharp concessions having been granted by some mills to large fence manufacturers in nearby districts on galvanized wire. As low as 3.45c Pittsburgh or $10 per ton under the scheduled quotation is said to have been named. This represents an additional concession of $5 per ton from that which some of the mills frequently have granted to the fence manufacturing trade. Other wire products apparently are remaining firm.

# Scrap Buying Still Absent

## Demand at Low Prices Fails To Interest Dealers Who Quit Speculative Buying—Pennsylvania Railroad Offers 10,845 Net Tons

FOR COMPLETE SCRAP PRICES SEE PAGE 384

Chicago, Feb. 1.—Except for some demand for cast scrap for foundry use, little material is being bought by consumers. Foundries are taking cast scrap in lots ranging from 100 to 500 tons in lieu of pig iron and to bring down the average cost of castings. While the total is not large, it is greater than in any other grade. Present activity in the market is confined almost entirely to speculative trading among dealers, who believe the market is practically at the bottom and that scrap can be carried at a profit. One result of this is to increase quotations although the general level is not greatly affected. Railroads are offering comparatively little scrap, partly due to low prices and partly to the fact that they have not been turning out a considerable tonnage. At present no important lists are before sellers.

### New England Decline Continues

Boston, Feb. 1.—The scrap market in New England still is declining. More tonnage is coming to forced sale through the urgent desire of small dealers to liquidate. The most active trading has been in machine shop turnings and in cast scrap. Foundries although still operating on greatly reduced schedules are commencing to lay in small supplies of scrap but the demand has not been sufficient to halt the downward trend of prices. One sale of No. 1 machinery reported during the week was at $23, delivered, but the market is better represented by $24 and some sales in the western part of Massachusetts have been at as high as $25. Railroad wrought in the absence of demand has dropped nearly $2 during the week and axle turnings and skeleton scrap have gone begging at $7. With exception of a few orders, the market has been without feature and has consisted of trading among dealers for speculative purposes. The Boston navy yard during the week opened bids on several hundred tons of miscellaneous scrap but no award has been announced. Bids submitted showed a wide spread in prices and ranged from $1 below the generally accepted market to 50 cents and $1 above.

### Quit Speculative Buying

New York, Feb. 1.—Quotations on cast scrap have fallen off approximately $1.50, with heavy cast now holding at $19.50 to $20.50, f.o.b. New York, and machinery cast at $20 to $21. Trading in these materials has been dull and recently a Newark, N. J., foundry was able to pick up a sizable tonnage at $19.50, f.o.b. New York. While the majority of trade interests continue to believe the bottom of the scrap market has been reached in this district, there has been less buying for storage than was in evidence last week. Apparently, dealers active recently regard heavy stocks as too much of a speculation. Wrought pipe has slumped 50 cents, now holding at $10.50 to $11, f.o.b. New York. Aside from this and the other two reductions mentioned, the local market is without change.

### Demand Still Limited

Pittsburgh, Feb. 1.—Due to the continued curtailed schedules, the scrap demand continues limited. One rerolling rail mill recently purchased a round tonnage of rerolling rail scrap at $17.25. This grade has dropped $3 per ton to $16 to $17. Dealers report small sales only. The Carnegie Steel Co. again is understood to be out of the markets. Bids will be taken by the Pennsylvania railroad, eastern region, on 10,845 net tons, comprising 37 items, No. 1 heavy melting steel and No. 1 rail steel, involving 1100 net tons each. In addition, one carload of galvanized iron tanks from life rafts as well as 2000 tons of unassorted scrap are offered. Bids will be taken until Feb. 4. A few other railroad lists are out but these do not specify tonnages available. Not from any presence of demand for railroad coil and leaf springs or steel car wheels, but simply to have them more in line with heavy melting steel, these two grades have been advanced 50 cents per ton. The usual differential is said to be $1 per ton higher than melting steel, making them quotable at $16 to $17. The same price quoted on couplers and knuckles. It is reported the Allegheny Steel Co., Brackenridge, Pa., is in the market for machine shop turnings but only is offering $9 which is uninteresting to sellers.

### Interest at Buffalo Wanes

Buffalo, Feb. 1.—Little has developed here in the market. After a slight flurry created by a local mill coming into the market for small tonnages of heavy melting steel, the excitement has subsided and conditions are again quiet. This mill is still ready to accept $15 steel, but most of the dealers have bought around $20 and are disinclined to sell for $15. Chance inquiries in other lines create considerable interest and generally result in price boosting.

### Business is Slack

Cleveland, Feb. 1.—Dealing is absolutely lacking in iron and steel scrap this week. In fact business has been so slack that dealers declare it is almost impossible to determine market quotations. In consequence prices remain unchanged although weak.

### Easier Tone at St. Louis

St. Louis, Jan. 31.—Industries in this district are purchasing very little scrap, and activity in the market is confined to dealers. The interchange, however, is less brisk than during the preceding week, and the tone of the market is easier. The only sale to an industry reported during the week was a small tonnage of stove plate to the American Radiator Co. This grade, which recently was offered at around $14 to $15 has advanced to $17.25 to $17.75, due entirely to the radiator company's small order. Railroad offerings have fallen off, the only list before the trade during the week being one of 800 tons from the Missouri, Kansas & Texas. Several lists are expected to be issued early next month. High freight rates and dearth of demand have served to hold arrivals of country scrap at a minimum. Some shipments on old contracts are reported, but many plants are down, or operating on reduced schedules, and the rule is to retard deliveries. Machine shop turnings declined $1, and rerolling rails were marked down 50 cents to $16.50.

### Regard Price Too Low

Philadelphia, Feb. 1.—Scrap buying here continues slender. One mill is buying turnings in small lots at $13, delivered, eastern Pennsylvania. Other buying is small. One mill is talking about buying a couple thousand tons of steel scrap to store if it can get this lot at $14, delivered, but it is not showing any real anxiety to close a purchase. At the same time, dealers regard this price as too low.

### Southern Market Quiet

Birmingham, Ala., Jan. 31.—The southern scrap market is very quiet, and dealers are not looking for any improvement until the pig iron market improves. A little scrap is moving on old contracts, but new business is confined to a car or two of various grades for immediate needs. Quotations indicate weakness. Heavy melting steel has been inquired for, but no sales are reported. Dealers' yards are well stocked.

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# Some Tin Plate

## Bought For Second Quarter But Most Users Are Stocked Up

Pittsburgh, Feb. 1.—A few contracts are being booked for second quarter delivery on tin plate. This is developing among packers and can makers. Specifications ordinarily are due Feb. 15, when April delivery is expected. Under present conditions, the purchaser can delay his specifications two to four weeks without endangering his tin plate supply. Both packers and can makers are carrying over large stocks, the former having large supplies of canned products on their hands as well as tin plate and the latter having large stocks of the made-up cans as well as the unfinished material. The tin plate manufacturers continue optimistic and believe before the second quarter is under way a large demand will manifest itself. Operations of the independent tin plate mills will not average in excess of 30 or 40 per cent of capacity while the American Sheet & Tin Plate Co. continues to maintain operations around 80 per cent, mostly on old orders. The only concession under the $7 per base box of 100 pounds, Pittsburgh, price noted is made in the East on stocks originally intended for export. Prices current on this material are as low as $5.35 but represent efforts to liquidate.

Tin plate has been shipped out heavily to oil interests for export use in recent weeks. Late last week some shipments were requoted held up for 30 days.

## Warehouse Prices Still on Downward Trend

Philadelphia, Feb. 1.—Prices on steel bars, shapes, plates and blue annealed sheets for shipment out of stock here, have been reduced 10 cents per 100 pounds. Jobbers here also have made a 40 cent reduction in the price of iron bars. The base prices on these products now are as follows: Steel and iron bars, 3.60c; shapes, 3.70c; plates, 3.90c; No. 10 gage blue annealed sheets, 4.80c. Prices continue unchanged at 5.95c, for No. 28 gage black sheets and 7.50c for No. 28 gage galvanized sheets. Jobbers are hopeful as a result of reports indicating increased warehouse shipments in other districts. This improvement is not reflected in business here. Shipments continue to move slowly out of warehouses here.

### Slight Demand Increase Noted

Boston, Feb. 1.—Iron bars have dropped to 3.75c and other grades remain firm at all Boston jobbing houses. Bars and cold-rolled flats and squares show an improved demand. In fact, most houses report a slight increase in trading this week over that of a week ago. Warehouses generally are holding up their orders with steel mills hoping for lower prices.

### Prices Decline Further

New York, Feb. 1.—A leading iron and steel jobber in this district has reduced prices on machine bolts. The large bolts are quoted 40 per cent off list, as against 20 per cent, and the small, 45 per cent, as compared with 30 per cent. Aside from this, no price changes have been reported, the market on the whole appearing firm, despite little or no improvement in demand. Buying at the moment continues to be centered on re-inforcing bars. Independent jobbers, in common with the leading sellers, are now quoting small differentials on shipments to the various sections of the greater New York district. The maximum differential represents a spread of 15 cents per 100 pounds and the minimum, 5 cents.

### Warehouse Nail Price Falls

Pittsburgh, Feb. 1.—A leading interest here has reduced its quotation on wire nails from warehouse from 4.00c to 3.75c.

### Sheets Are Lowered

Buffalo, Feb. 1.—Additional reductions have been made in prices according to the schedule of a local warehouse. These are now quoted as follows: No. 10 blue annealed sheets, 4.70c; No. 28 black sheets, 5.75c; No. 28 galvanized sheets, 7.10c; and hoops, 4.20c.

The Park Mfg. Co., Worcester, Mass., maker of screw machine products, has purchased the business of the Worcaster Shock Absorber Co., maker of door checks, which was a munition plant during the war. The two plants have been consolidated.

# Sheet Demand Increases

### Automobile Makers Placing Orders, and Suspended Tonnages Are Being Released—Total, However Is Not Large

Pittsburgh, Feb. 1.—Interest in sheets among automobile manufacturers is developing in a slight measure. A few of the companies affiliated with one of the largest automotive interests have ordered shipped forward by March lots involving 200 tons or more. It is stated that if the automobile plants contemplate resuming operations in full in March or April they will have to look to their sheet supplies now, and while many of them have large stocks on hand, considerable matching up will be done and this business is expected to be sizable. Considerable business continues to come from stove manufacturers although because of the open winter this demand is far from normal. Much of this business calls for a highly finished product and some of the mills have been concentrating on it. However, it is thought probable that this output will have to be curtailed. Apparently little foundation exists for recent reported concessions of $5 per ton on No. 28 black sheets. The price quoted in this territory remains at 4.35c, base, Pittsburgh. Operations at the mills of the American Sheet & Tin Plate Co. continue at a high rate and it looks now as if it would be possible to increase stocks on hand, notwithstanding the fact that its shipments are kept well up near output. New business coming in is rated at 80 per cent, whereas operations are around 90 per cent. One of the larger valley sheetmakers reports a continued fair demand for corrugated sheets. It is understood that releases have been obtained by the Trumbull Steel Co., Warren, O., on a large sheet tonnage ordered suspended late last year by one of the leading Detroit automobile manufacturers which with other releases enabled it to start up its mills this week.

### Prices on Galvanized Shaded

Youngstown, O., Feb. 1—While a few inquiries are before sheet makers, little business is developing. No. 28 black is firm at 4.35c, and blue annealed at 3.55c, Pittsburgh, but a stock list issued by a dealer in this territory last week shows that galvanized is not firm at 5.70c. This offering of over 1500 tons of both plain and corrugated galvanized at 5.40c and 5.45c, respectively, indicates the seller is taking advantage of the low spelter market. The $1.35 spread between black and galvanized established in 1918 was based on 9.00c spelter, but with the market now at 5.60c for prompt prime western spelter, New York, it is not surprising in view of lower galvanizing costs to hear of prices on this grade of sheets being shaded.

Recently a New York consumer purchased 200 tons of imported spelter at 5.40c, New York, or 20 cents per 100 pounds under the American market. Certain consumers of spelter state they would not be surprised to see the market sag around 4.50c by July. But should the proposed new tariff become effective they expect that by September the price of spelter will go back to between 6.50c and 7.50c many interested say.

That a shortage of sheets will result from the present low operating schedule of sheet mills is not probable. The output of independent mills recently has been about 30 per cent, which, with the steel corporation's rating, brings the sheet output of the country to about 70 per cent. At the same time it is questionable whether the consumption of sheets during the last 60 days has exceeded 20 per cent. Indications are that approximately 30 per cent more sheets have been placed on the market than were consumed, not considering the heavy tonnages piled on warehouse floors due to cancellation or suspensions.

In some cases suspended tonnages have been released by automobile builders. One mill has a release of 100 tons.

### Steel Sheets in Demand

Chicago, Feb. 1.—Consumers of sheets are buying some material. Demand is better in this department than for most forms of finished steel. The Inland Steel Co. has 18 sheet mills active and has sufficient business now on books to assure operations at full capacity through February. Indications are that sufficient new tonnage will be booked in the meantime to prolong the period of such operations. Most buying is for prompt delivery. Greater activity in automobile demand is looked for.

### Report Prices Are Shaded

Philadelphia, Feb. 1.—There never was a time when there were more rumors of shading in the sheet market. Numerous consumers say they are buying at concessions, but it is impossible to verify these claims. In several instances where cutting was alleged, a careful investigation shows that the full price was obtained. Demand has improved. Several coal companies have bought moderate tonnages of black and blue annealed sheets, and other companies have bought small lots. The Pennsylvania railroad asked for 300 tons blue annealed.

## Reduce Chain Price

Pittsburgh, Feb. 1.—Leading chain makers have reduced the price of 1-inch proof coil chain from 7.25c, base, Pittsburgh, to 6.75c, base, or $10 per ton, Pittsburgh, effective immediately. It had been considered generally that any decrease in the price of this product would have to be predicated upon a reduction in wages, but whether thsi has been done is not stated. Makers are working on old orders.

Walter P. Andrews, of Atlanta, Ga., has been named receiver for the Superior Motor Truck Co., manufacturers with factory and offices at Atlanta. Following a petition filed by the Beaver Mfg. Co., and instituted by Hubbard Brothers and the Shearer Machine Co., both of Atlanta, and the L. C. Chase Co., of Boston. The petition alleged that the company owed large sums and was insolvent.

# Shape Buying Prospective

**Below Normal Now, Construction Projects Indicate Increased Activity Soon—Strike Affects Boston—Prices on Fabricated Material Lower**

New York, Feb. 1.—A better sentiment prevails in the local structural market and this is backed up by a slight increase in activity. Recently two contracts were placed, involving 500 and 770 tons respectively, and there is a little improvement in business of a smaller character. There is little new active inquiry, however.

It is reported the 1700 tons or so for the M. W. Kellogg Co., Jersey City, went to Lackawanna Bridge Co.

### Small Orders Increase

Philadelphia, Feb. 1.—While important structural shape orders are lacking in this district, small orders are increased in volume. No structural lettings of importance were made in the past week.

### Business Mostly Prospective

Pittsburgh, Feb. 1.—While a few small awards continue to be made, business now being considered by the structural shape mills as well as fabricators mostly is prospective. Inquiries seem to be picking up, however, and while up to recently 100 tons represented the average tonnage involved, those requiring 200 to 500 tons are becoming more frequent. Within the next few weeks some interesting developments are expected. The most interesting so far is the new inquiry by the George A. Fuller Co. which has the general contract for the Keeler hotel, Albany, N. Y. Revised bids are being requested on this and 2000 tons are involved.

### Building Activity Better

Chicago, Feb. 1.—Although construction is far from normal, some business continues to come out and a number of projects are being closed each week in the West. Prices being quoted on fabricated material are being brought down to a level much below what prevailed a short time ago, and it is understood material for a manufacturing building at Kansas City was awarded recently at $83 per ton, delivered. Several other bids on the same tonnage were at figures somewhat under $90 per ton.

#### CONTRACTS AWARDED

Highway span for Jefferson county, Wis., over Crawfish river at Aztalan, 100 tons, to Northwestern Bridge & Iron Co.

Building No. 4, for Corn Products Refining Co., Kansas City, Mo., 803 tons, to Kansas City Structural Steel Co.

Scottish Rite temple, Guthrie, Okla., 345 tons, placed with independent shop.

Masonic Temple building, Hammond, Ind., 215 tons, to Union Foundry Co.

Crane runway, New York navy yard, 770 tons, to the Bethlehem Steel Bridge Corp.

Plant for Enamelware Co., Chattanooga, Tenn., 500 tons, to the Rochester Bridge Co.

Municipal shop, Philadelphia, 300 tons, to independent shop.

Plant for M. W. Kellogg Co., Jersey City, N. J., approximately 1700 tons, reported recently as having been placed, said to have been awarded to the Lackawanna Bridge Co.

#### CONTRACTS PENDING

Highway bridge, Grand Trunk railroad, Stratford, N. H., 200 tons, indefinitely postponed.

Bank building, Scranton, Pa., 200 tons, pending.

Eleven deck plate girder spans for Great Northern railroad, 370 tons, bids asked.

Ten-ton coal bridge for Duluth, Minn., 600 tons, bids asked by Mead-Morrison Mfg. Co., Engineers, Chicago.

# Order 2700 Cars

**For Louisville & Nashville—Rail Business Improving**

Chicago, Feb. 1.—The Louisville & Nashville railroad has closed contracts for 2700 freight cars in its addition to its former purchase of 2000 cars. The American Car & Foundry Co. has been awarded 1500 box cars and 100 stock cars, the Mt. Vernon Car & Foundry Co., 500 box cars and the Chickasaw Shipbuilding Co., Mobile, 300 coal cars and 300 gondolas. These cars will require about 15,000 tons of steel which probably will be furnished by mills in or near Chicago. The Louisville & Nashville now is in the market for 100 cabooses. The Union Pacific railroad has placed orders for an additional 10,000 tons of rails with the Illinois Steel Co. Orders for approximately 20,000 tons of rails have been placed in this district during the past week by frog, switch and crossing manufacturers.

### 2000-Ton Rail Order Placed

New York, Feb. 1.—The Norfolk & Western railroad is reported to be having 600 gondolas rebuilt by the Ralston Steel Car Co. Inquiries include several hundred cars for the Chinese government railroads, the exact number not being decided, and 100 gondolas and 100 hoppers for the Bertha Coal Co., Pittsburgh.

# Oil Country

**Demand for Pipe Falls With Curtailed Operations—Standard Needed**

Pittsburgh, Feb. 1.—Practically 100 per cent operations prevail among the pipe plants in this territory. Oil country demand is lower due to the curtailed operations in the oil fields. A few inquiries as well as spasmodic orders continue to come in. While some steel plants have shut down their bessemer departments partly because of the declining need of oil country pipe, they are continuing their open-hearth operations due to the demand for standard merchant pipe. One of the larger valley pipe makers is concentrating upon standard merchant pipe believing that a revival in the building trades will introduce a huge demand for this product. Approximately half of the demand for iron pipe is coming from jobbers.

Effective Jan. 21 the Reading Iron Co., Reading, Pa., has issued a new card on charcoal iron boiler tubes, showing higher discounts as follows: 1¼ and 1⅜-inch, list plus 10 per cent; 2-inch, list; 2¼ and 2¾-inch, 6 per cent off; 3 and 3¼-inch, 7 per cent off, and 3½ to 4½-inch, 12 per cent off. On steel boiler tubes the discounts in carload lots are as follows: 1¼ and 1-inch, 19½ per cent off; 2¼-inch, 24 per cent off; 2½ and 3¼-inch, 30½ per cent off; and 3½ to 4½-inch, 40½ per cent off.

### Bids Are Received

New York, Feb. 1.—No award yet has been made on 1000 tons of cast iron pipe for Wharton, N. J., but the Warren Foundry & Machine Co. is low with a bid of $67,870.68. Its bid in detail follows: 4-inch, $71.10; 6, and 8-inch, $61.10; and 10, and 12-inch, $60.90, all f.o.b. Wharton.

### Buy Small Tonnages

Chicago, Feb. 1.—Some business is being booked in cast iron pipe, but cities are not taking as large quantities as usual. Competition is fairly keen, and contracts sometimes are decided on differences of 5 cents per ton. Inquiry is better than it has been, but not as much as usual is experienced at this season. One important producer which has taken a fair tonnage recently will be out of the market for the next 30 days, as it figures it will lose money on all the business it takes under present conditions. Peabody, Kans., asked bids on 1100 tons, but before the day of opening the letting was postponed indefinitely. The National Cast Iron Pipe Co. has taken 250 tons at Toledo, O., and is low bidder on 600 tons at Minneapolis. The city of Los Angeles has awarded 1100 tons to the United States Cast Iron Pipe & Foundry Co.

# Open-Hearth Bars

**Offered Sheetmakers at $43—Semifinished Market Dull**

Pittsburgh, Feb. 1.—Many "feeler" inquiries for semifinished material are making their appearance in this district. Not much importance is attached to many of these since they are issued for the purpose of sounding out the market. This is believed to be the character of the recent inquiry by the Townsend Co., New Brighton, Pa., for 5000 tons of wire rods which, so far as reported, has not been placed. The price quoted on this product is $57, base, Pittsburgh. Another similar inquiry originates with a mill in the eastern region for 5000 or 6000 tons of sheet bars. Since this mill is known to have a large stock of sheet bars on hand it is believed that this is only an effort to obtain a price. One inquiry is current in this territory for 2000 tons of open-hearth sheet bars on which the usual price of $47 is quoted. Several plants are issuing inquiries for this and similar material because their open-hearth capacity is idle. One such comes from a mill in the Central West for 4000 tons and a sale recently reported comprised 650 tons to a mill which is reluctant to start up its open-hearth furnaces for such a relatively small tonnage. The Carbon Steel Co. recently issued an inquiry for 4500 tons of 2 x 12-inch slabs for 40 to 50 tons of billets.

Slabs are quoted at $46, base, Pittsburgh, while 4 x 4 rerolling billets are held at $43.50 with the smaller billets quoted at $47. The Valley Forging Co., Verona, Pa., recently asked for prices on 200 tons of forging billets on two specifications, 100 tons each. Forging billets are quoted at $51, al-

though some makers still name $55.

### Offer Open-Hearth Bars at $43

Youngstown, O., Feb. 1.—Practically no demand for semifinished material exists in this district. Few sheetmakers are specifying against sheet bar contracts. Both grades of sheet bars are quoted by makers at $47, Youngstown, but little if any new business is being booked. A sheetmaker in a nearby district is understood to have been offered a round tonnage of open-hearth bars for immediate rolling at $43, mill, by an Ohio producer. This offer now is being considered by the sheetmaker. A few scattered sales of forging billets were made recently at $50, Youngstown. Standard billets under 4 x 4 inches and larger than 4 x 4 inches are quoted by makers at $45.50 and $43.50 respectively, Youngstown.

## Mine Wage Cuts in Effect

Duluth, Feb. 1.—Practically all independent mining companies operating on Minnesota ranges reduced miners' wages 15 per cent today. J. H. Olcott, president, Oliver Iron, Mining Co., announced his company has not considered reductions at present.

## Concrete Bars in Demand

Pittsburgh, Feb. 1.—Makers of reinforcing concrete bars report that they note an improvement in demand as compared with a week or 10 days ago. A few inquiries are out involving 100 to 150 tons and a few sales involving similar tonnages have been made. The usual heavy spring trade is anticipated and preliminary negotiations are expected.

# High Ore Costs Shown

### Operators' Data for 1920 Reveals Average Profit of but 76 Cents—Interest Centered in Possible Cut in Quotations

Cleveland, Feb. 1.—Cost figures relating to production of iron ore form the most engrossing subject at present with operators in the Lake Superior district, and as consumers anticipate price reductions this year the data compiled from reports of the leading operators are considered of importance both to producers and consumers. What price cuts, if any, will be made is simply a matter of conjecture at this time, although the operators have taken the initiative in reducing wages 15 per cent and hope for a further reduction in cost of vessel transportation. That ore prices cannot be cut very much on the basis of present costs, is said by operators to be evident from the figures which show that the net operating profit on business done in the first 10 months of 1920 averaged but 76 cents per ton. As costs during the last two months of the year increased the average, the profit on the entire year's business is reported to have been slightly less than 76 cents per ton. The average for 11 months in 1919 was 22.1 cents a ton and in 1918 it was 31.2 cents. The following shows how the average costs for producing both bessemer and nonbessemer ores advanced during the past three years in comparison with average net profits:

| | 1920 | 1919 | 1918 |
|---|---|---|---|
| Labor | $1.311 | $1.221 | $1.076 |
| Other mining costs | 1.240 | 1.122 | 1.064 |
| Royalty | .639 | .543 | .541 |
| Transportation and delivery | 2.081 | 1.810 | 1.841 |
| Total operating cost | 5.271 | 4.696 | 4.522 |
| Average price received | 6.331 | 5.243 | 5.102 |
| Operating profit | 1.060 | .547 | .580 |
| Less depletion | .300 | .326 | .268 |
| Net operating profit | .760 | .221 | .312 |

For all underground mining exclusively the average net profit was but 63.7 cents per ton as shown by the following:

| | 1920 | 1919 | 1918 |
|---|---|---|---|
| Labor | $1.688 | $1.653 | $1.418 |
| Other mining costs | 1.278 | 1.186 | 1.183 |
| Royalty | 0.538 | 0.476 | 0.438 |
| Transportation and delivery | 2.033 | 1.753 | 1.751 |
| Total operating cost | 5.527 | 5.068 | 4.790 |
| Price received | 6.501 | 5.380 | 5.324 |
| Operating profit | 0.974 | 0.321 | 0.534 |
| Less depletion | 0.337 | 0.343 | 0.328 |
| Net operators' profit or loss | 0.637 | —0.022 | 0.206 |

The very low average profit for underground operations was offset by higher profits from open pit mining, the average net profit having been $1.026 per ton according to the following:

| | 1920 | 1919 | 1918 |
|---|---|---|---|
| Labor | $0.441 | $0.375 | $0.334 |
| Other mining costs | 1.152 | 0.996 | 0.804 |
| Royalty | 0.894 | 0.674 | 0.765 |
| Transportation and delivery | 2.191 | 1.921 | 2.038 |
| Total operating cost | 4.678 | 3.966 | 3.941 |
| Price received | 5.919 | 4.957 | 4.619 |
| Operating profit | 1.241 | 0.991 | 0.678 |
| Less depletion | 0.215 | 0.292 | 0.137 |
| Net operating profit | 1.026 | 0.699 | 0.541 |

The averages for producing bessemer ores, underground and open pit, all ranges, were as follows:

| | 1920 | 1919 | 1918 |
|---|---|---|---|
| Labor | $1.475 | $1.313 | $1.353 |
| Other mining costs | 1.333 | 1.155 | 1.169 |
| Royalty | 0.646 | 0.561 | 0.622 |
| Transportation and delivery | 2.153 | 1.873 | 1.920 |
| Total operating cost | 5.607 | 4.902 | 5.064 |
| Price received | 7.093 | 5.970 | 5.728 |
| Operating profit | 1.486 | 1.068 | 0.664 |
| Less depletion | 0.367 | 0.393 | 0.306 |
| Net operating profit | 1.119 | 0.675 | 0.358 |

The following gives the averages for nonbessemer, underground and open pit, all ranges:

| | 1920 | 1919 | 1918 |
|---|---|---|---|
| Labor | $1.273 | $1.192 | $0.988 |
| Other mining costs | 1.218 | 1.112 | 1.030 |
| Royalty | 0.637 | 0.533 | 0.516 |
| Transportation and delivery | 2.064 | 1.790 | 1.816 |
| Total operating cost | 5.192 | 4.632 | 4.350 |
| Price received | 6.153 | 5.019 | 4.902 |
| Operating profit | 0.961 | 0.387 | 0.552 |
| Less depletion | 0.285 | 0.305 | 0.255 |
| Net operators' profit | 0.676 | 0.082 | 0.297 |

In all the foregoing, comparisons are made between average costs as shown for the first 10 months in 1920 with 11 months in 1919 and the full year 1918. The item of transportation and delivery includes rail rates to upper lake docks, lake freight, tax, insurance and cargo analyses. "Other mining costs" include supplies, crushing and concentrating, taxes, stripping and similar items.

The market for ore is likely to be greatly restricted this year and the operators do not believe demand will be experienced until May or June.

# The Nonferrous Metals

| | ‡Copper | Spot Straits New York | †Lead New York basis | Zinc St. Louis basis | Spot† Aluminum | Spot antimony | Nickel ingot |
|---|---|---|---|---|---|---|---|
| Jan. 26 | 13.125 | 33.50 | 5.00 | 5.25 | 23.50 | 5.35 | 43.00 |
| Jan. 27 | 13.125 | 34.62½ | 4.87½ | 5.25 | 25.00 | 5.25 | 43.00 |
| Jan. 28 | 13.125 | 33.75 | 4.87½ | 5.22½ | 25.00 | 5.25 | 43.00 |
| Jan. 31 | 13.125 | 34.00 | 4.95 | 5.10 | 25.00 | 5.25 | 43.00 |
| Feb. 1 | 13.125 | 33.00 | 4.80 | 5.05 | 25.00 | 5.25 | 43.00 |

†Open market quotation.
‡Producers, price delivered; outside 12.62½c to 12.87½c refinery.

NEW YORK, Feb. 1.—Steadily advancing exchange rates were the one favorable factor in the metal markets the past week. Higher exchange rates increased the parity of London metal prices, thus advancing import costs and decreasing opportunity of competition of foreign lead and zinc in this market. Also, higher exchange broadened the outlet for copper abroad, a good export business resulting through the expanded buying power. Later, the London copper market declined, discounting the stronger exchange. In general, however, the metal situation has remained unfavorable. Demand from consumers has been extremely slow and such business as reported has been confined mostly to small lots for prompt shipment.

Copper selling agencies generally maintained a range of prices for spot and first quarters of 13.00c to 13.25c, delivered, but smaller interests early in the week announced a quotation of 12.75c for prompt copper and took most of the business offered, at that level. Casting copper was quoted at 12.50c; lake at 13.25c. A fair business was done for export to Norway, Germany, France and England, both in raw coper and in copper bars. An important meeting of copper producers is scheduled for Feb. 1.

The zinc market has steadily tended downward, toward the level of 5.00c, East St. Louis. This price was bid Monday and today, with 5.10c now asked. Demand has been abnormally slow, while pressure of stocks at smelters has been heavy. Some of the smaller sellers have been forced to offer metal from time to time to get cash, with the result that lower prices steadily have come out.

The lead market has been relatively firm but was weak today. It is limited at current levels principally by import costs. The leading producer has maintained its quotation of 4.75c, New York and St. Louis, and is understood to have been taking business from its regular customers. Outside sellers have taken business at 4.87½c to 5.00c, New York, 4.62½c to 4.75c, St. Louis, for prompt, February and March shipments.

The tin market has continued extremely erratic, with swings of 1 cent to 2 cents a day not uncommon. Consumers have held aloof from the market, while dealers also have been cautious. Quotations ranged upward with stronger exchange rates, to 35.00c, then down to 33.00c, for spot, New York. A rumor was heard that the Federated Malay States government planned to reduce the pegged price to a level equivalnt to £205, London, but this has not been confirmed. The pegging of the tin price has been an uneconomic procedure and has served to make matters worse in the tin market.

The antimony market stiffened a little early last week then reacted about ¼ cent a pound, to 5.25c, wholesale lots, duty paid, New York.

# Export Stock Taking in Progress

## Merchant Inquiries from the Orient Indicate Renewed Interest in American Market — Large Steamship Space Booked by Steel Shippers for Goods Moving To India, China and Japan—English Plate Order Expected

NEW YORK, Feb. 1.—While exporters generally note a continuation of the slump in business there are a number of evidences of a fundamental change in the trend of foreign trade. Inquiries have come into the market, and while they are for small tonnages they are encouraging. A number of small inquiries which have developed into orders are from foreign merchants, which means the merchant stocks of the world are being balanced off. In other instances the inquiries are merely feelers, and the inquirers are frank enough to make that fact clear. It indicates a disposition on the part of foreign merchants to take an inventory and to reprice their stocks on the basis of new market conditions. Some exporters think that the inventories will show a much larger volume of iron and steel in stock than is generally supposed, and that might mean another recession of business.

Only a few of the exporters declare that they are still receiving requests from foreign merchants to have their purchases resold. This resale merchandise is finding a market on a lower price basis. The movement is tending to break down some of the scheduled prices, although prices of a few of the commodities have been holding firm. For instance sheets have been holding firm at 5.70c, Pittsburgh base, while nails are quoted under the Steel corporation's export price and offered at 3.25c, Pittsburgh base. These varying quotations are not mill prices in all instances but rather are prices which are forced on the market by warehousemen, and others.

Another encouraging feature of the market is the fact that the free movement of goods on old orders is resuming service. Much of the tonnage recently moved up to this time was practically forced upon the purchasers under their contracts. During January there was a small movement of steel, according to reports current at this port, although during the past week some good orders were booked.

Inquiries are coming in again from the Far East. In several instances they have crystallized into business for the steamship companies and freight forwarders. One forwarding concern reported an order for space sufficient for 6000 tons of railroad steel for Shanghai, and another for 4000 tons of steel bolts, nuts and other material used in railroad construction. This last order was consigned to Kobe. India is reported to have manifested renewed interest in American shipments, and has figures on large quantities of steel. Traders think they see the beginning of the end of what amounted to a practical suspension of business.

China has purchased small lots of wire and bars. Shanghai is inquiring again for a small lot of bars. One export house reported the receipt of a Chinese inquiry for 250 tons of boiler tubes. Some of the Chinese inquiries are from merchants although it is not exactly for merchant stock but rather for odd sizes.

Suzuki & Co. has ordered 1000 tons of track accessories from the United States Steel Products Co. for use on the South Manchuria railway. The Belgian State railways are inquiring for 100 consolidation type locomotives. The Chinese government wants 500 to 1500 freight cars, and the Tientsin-Pukow railway is asking for 300 forty-ton gondola cars.

### Japanese Trade Still Dull

Japan continues in a period of depression and some merchants think this will continue for three or four months. Yet Japan has placed a few orders for tin plate in the United States as well as a small order for spelter, and has made an inquiry for more of the latter material. Another house reported the receipt of a Japanese inquiry for a small tonnage of tubes.

Business from the Pacific insular nations is dull. The Philippines have purchased some tubes, and are buying wire and sheets in small lots. The Dutch East Indies have sent a number of inquiries for sheets, rails, shafting and wire.

Australia has submitted a number of inquiries for pipe, varying in tonnage from 18 to 50. It is reported that the merchants of Australia are anticipating the imposition of a new tariff and are striving to buy from this country before the increased duties go into effect. Egypt has submitted inquiries for a small tonnage of nails.

Conditions in Europe are confusing. One agency reported that two or three big plate orders are expected to develop shortly in England. They are believed to be contingent on the resumption of shipbuilding, and that means they will be held off until the exchange rates improve. The agency entertains considerable confidence as to its ability to take some of the English plate business.

The recent order for locomotives for Spanish railroad tenders, bids for which were opened Jan. 15, was awarded to German shops, but the rest of the order, which called for 3500 freight cars, went to a combination of Spanish interests. American agents lost out in this competition.

One American house is shipping a consignment of corset steel to France. If this first order proves acceptable there is a chance of supplying something like 10 tons a month.

Latin-American conditions are in such a depressed state that no hope is entertained for immediate business. The moratorium in Cuba continues. Last week a large bank in Brazil failed, and it is anticipated that country may be forced to declare a moratorium. Colombia still is in financial straights and Argentine finances are not much better. Recent reports from Argentina declare that the American dollar is worth approximately $1.27 in that country, which makes it more difficult to make American collections against Argentine merchants. The difficulties in South America are not due to the exchange but rather to internal credit conditions. If the exchange were any measure of foreign business all South American would be buying from Germany and Belgium, as they would not only have the benefit of an advantageous exchange rate but of extremely low base prices. Yet these countries are selling little of anything in South America. One New York exporter reported that a little tin plate has been sold South America. It was the only business heard of last week.

Many overtures are being made to Mexican merchants. Some American houses have sent heads of departments into Mexico to look up business and some is coming through as a consequence. The minister of finance of Mexico has signed a contract with American firms, it is reported, for a credit of $5,000,000, with which to purchase railroad equipment.

Independent exporters report that they have booked Mexican orders for sheets and plates in small tonnages.

# Railroads Consider Rate Cuts

## Believe Decreased Charges Would Revive Traffic Which, with Lower Wages and Curtailed Forces, Would Earn Required Return Upon Investment—Increases Granted Last August Have Failed To Meet Expectations

WASHINGTON, Feb. 1.—While it may be said a general reduction in railroad freight and passenger rates is not imminent, there is no longer any question but that the railroads are convinced the present rates are too high and must be lowered if traffic is to be revived to any degree. It is now conceded by the carriers that prompting their insistence for the abolition of the national labor agreements and their expected proposals for wage reductions is the thought of cutting their costs to a point warranting lower rates. For the present, at least, the position of railroad executives appears to be to lay less emphasis upon the need for obtaining a 6 per cent return than upon the desirability of reducing costs so that rates may be lowered and traffic stimulated.

So far as returning a net revenue of $1,134,000,000 annually, which is the required 6 per cent upon their investment, the interstate commerce commission's rate increases effective last Aug. 26 have proved of no avail, and the carriers appear farther than ever away from the goal. The alternative now seems to be lighter costs which will make possible lower rates which in turn should increase business.

### Ask Wage Reductions

The first step in what may prove the path to lower rates is now being taken at Chicago before the railroad labor board. The carriers are asking that the board sanction labor scale reductions which will save close to $500,000,000 annually, and the abolition of the national agreements, which it is said would save $150,000,000 more through smaller forces and increased efficiency. In some quarters reduced rates are looked for by March 1, but this is generally believed to be much too early a date. Some railroad executives look for an upturn in business at about the end of the first quarter, and with operating costs tending downward and business conditions upward, they believe a few months of industrial revival would make possible the anticipated lower tariffs. A minority in Washington holds the view slack business will eventually compel a reduction in rates, and that this will so impair earnings the carriers will be turned back.

The railroads at present are transporting 15 per cent less freight than at this time one year ago, 20 per cent less than at the beginning of December, 25 per cent under November and 33 1/3 per cent under October. A perusal of statistics compiled by the car service division of the American Railway association reveals a steady falling off in freight loading since the beginning of October, with a few exceptions. Since the beginning of January a slight gain in freight has been discernible, but whether this represents only a temporary movement or the beginning of continued improvement cannot yet be ascertained. Not since the beginning of the switchmen's strike last April have the railroads been carrying less freight than at present, as the accompanying table, compiled from American Railway association figures, shows.

Loading of coal in the period beginning the first week of August and ending with the middle of January shows a fairly close range, except the extremely low loading in Christmas week. Loading of ore in all parts of the country reached its maximum the middle of September, and with the Great Lakes season now at an end, loading at present is only an eighth of what it was in mid-September. Loading of coke has held up much more consistently than any other commodity since traffic began to dwindle.

Announcement of a plan whereby joint through class rates are to be put into effect between central freight association territory and the Southeast is expected to stir vigorous protest from Ohio river cities. The effect would be to eliminate Ohio river cities as rate factors and end an alleged undue advantage they have been holding for years. The new rates would be subject to southern classification and may be made effective in about 90 days. As pig iron and other iron and steel articles are covered by special tariff arrangement the proposal will affect iron and steel shipments less than general merchandise.

A minority report along with the favorable report of the house interstate commerce committee on the Winslow bill, which would release some $400,000,000 due to the railroads from the government, may seriously hamper efforts to have the bill passed this session.

In reporting out favorable the Frelinghuysen bill, intended to give some relief from section 10 of the Clayton act, the senate committee on interstate commerce has virtually rewritten the bill in conformity with the recommendations of the interstate commerce commission. These recommendations include raising from $50,000 to $100,000 the value of supplies or equipment that can be purchased in any one year without advertising for bids from any company in which there is a community of interest with the purchasing carrier.

### How Freight Loading Has Fallen Off

FIGURES IN CARLOADS

| Week ended | —Total of all freight— | | Coal | Coke | Ore |
|---|---|---|---|---|---|
| | 1921 | 1920 | 1921 | 1921 | 1921 |
| Jan. 15 | 709,888 | 840,524 | 183,228 | 10,483 | 9,590 |
| Jan. 8 | 706,413 | 830,673 | 190,284 | 11,479 | 10,717 |
| Jan. 1 | 598,905 | 745,446 | 170,224 | 10,550 | 8,340 |
| | 1920 | 1919 | 1920 | 1920 | 1920 |
| Dec. 25 | 639,275 | 684,784 | 117,308 | 10,956 | 9,479 |
| Dec. 18 | 796,858 | 806,734 | 223,153 | 12,750 | 14,127 |
| Dec. 11 | 834,897 | 761,940 | 230,396 | 13,904 | 17,673 |
| Dec. 4 | 872,162 | 789,286 | 230,228 | 15,643 | 27,195 |
| Nov. 27 | 797,673 | 739,197 | 205,985 | 14,330 | 31,445 |
| Nov. 20 | 880,528 | 854,601 | 216,322 | 13,259 | 37,009 |
| Nov. 13 | 919,909 | 808,304 | 228,035 | 13,894 | 49,361 |
| Nov. 6 | 910,592 | 826,724 | 202,607 | 18,814 | 57,998 |
| Oct. 30 | 973,120 | 935,479 | 224,703 | 15,451 | 68,216 |
| Oct. 23 | 1,010,961 | 977,051 | 229,043 | 16,898 | 73,182 |
| Oct. 16 | 1,005,663 | 972,078 | 227,642 | 14,139 | 76,534 |
| Oct. 9 | 1,009,787 | 962,171 | 229,976 | 15,431 | 79,214 |
| Oct. 2 | 975,946 | 957,596 | 207,597 | 14,441 | 76,940 |
| Sept. 25 | 994,687 | 987,041 | 212,820 | 14,460 | 82,939 |
| Sept. 18 | 983,913 | 984,991 | 195,592 | 14,724 | 85,419 |
| Sept. 11 | 874,043 | 946,970 | 174,871 | 14,471 | 72,727 |
| Sept. 4 | 947,743 | 904,393 | 199,349 | 14,168 | 77,260 |
| Aug. 28 | 985,064 | 951,653 | 211,993 | 15,241 | 77,392 |
| Aug. 21 | 964,256 | 913,209 | 204,280 | 11,486 | 76,588 |
| Aug. 14 | 962,352 | 832,439 | 222,292 | 14,236 | 67,260 |
| Aug. 7 | 942,150 | 930,267 | 197,103 | 13,437 | 65,151 |

# Iron Output Continues To Slump

## During January 21 Additional Blast Furnaces Are Blown Out or Banked—Only 184 Are Active on Jan. 31—Pig Iron Production Shows a Drop of 287,975 Tons from Preceding Month

CONTINUING on the downward trend of the last two months of 1920, production of coke and anthracite pig iron in January dropped to 2,412,293 tons, a loss of 287,975 tons from the 2,700,268 tons of December. This is the lowest tonnage produced since November, 1919, when as a result of the steel strike only 2,407,369 tons were produced. Stack activity also showed further reduction and on Jan. 31 only 184 furnaces were in operation. The net loss during the month was 21 stacks, bringing the total number blown out or banked since Oct. 31 to 106 stacks.

**MONTHLY PRODUCTION**

| | 1921 | 1920 | 1919 |
|---|---|---|---|
| January | 2,412,293 | 3,012,373 | 3,306,279 |
| February | | 2,984,257 | 2,943,347 |
| March | | 3,375,768 | 3,088,023 |
| April | | 2,752,670 | 2,474,374 |
| May | | 2,991,825 | 2,107,729 |
| June | | 3,046,623 | 2,114,028 |
| Total 1st half | 2,412,293 | 18,163,516 | 16,037,988 |
| July | | 3,043,918 | 2,424,212 |
| August | | 3,145,536 | 2,742,081 |
| September | | 3,124,308 | 2,480,790 |
| October | | 3,288,341 | 1,864,424 |
| November | | 2,935,081 | 2,407,369 |
| December | | 2,700,268 | 2,626,074 |
| Total 2nd half | | 18,237,452 | 14,544,950 |
| Grand total | 2,412,293 | 36,400,968 | 30,578,730 |

Merchant furnaces in January produced 470,088 tons, a loss of 132,370 tons from the December figure of 602,458 tons. On an average daily basis, the January output was 15,164 tons which compared with the 19,434 tons of December was a loss of 4270 tons. Nonmerchant or steelworks furnaces made 1,942,205 tons which was a decrease of 155,605 tons from the 2,097,810 tons of December. Reduced to a daily basis, the January production represented 62,651 tons, a drop of 5020 tons from the 67,671 tons of the previous month. The greatest relative loss in production is shown by merchant furnaces which registered a loss of about 23,000 tons less than the decline in nonmerchant output. The average daily production of all the furnaces during January was 77,816 tons which, compared with 87,105 tons of the previous month, showed a decrease of 9289 tons.

**AVERAGE DAILY PRODUCTION**

| | 1921 | 1920 | 1919 | 1918 | 1917 |
|---|---|---|---|---|---|
| Jan. | 77,816 | 97,172 | 106,654 | 77,523 | 101,930 |
| Feb. | | 102,904 | 105,270 | 82,794 | 94,641 |
| Mar. | | 108,895 | 99,614 | 103,548 | 105,026 |
| April | | 91,754 | 82,479 | 109,112 | 110,936 |
| May | | 96,510 | 67,991 | 111,351 | 110,119 |
| June | | 101,553 | 70,467 | 110,538 | 108,675 |
| July | | 98,190 | 78,200 | 109,954 | 107,659 |
| Aug. | | 101,468 | 88,453 | 108,983 | 104,483 |
| Sept. | | 104,143 | 82,692 | 113,774 | 104,691 |
| Oct. | | 106,075 | 60,142 | 112,335 | 106,332 |
| Nov. | | 97,836 | 80,244 | 111,595 | 106,620 |
| Dec. | | 87,105 | 84,711 | 110,602 | 93,077 |
| Av. | 77,816 | 99,456 | 83,910 | 105,290 | 104,502 |

Ferromanganese totaled 19,688 tons in January and showed a loss of 8424 tons from the 28,112 tons of the preceding month. Spiegeleisen with 2533 tons also showed a loss from the December figure of 4587 tons, the drop being 2054 tons.

On Jan. 31, 184 furnaces were in operation while on Dec. 31, 205 were operating, the net loss being 21 stacks. The January figure is the lowest number of stacks operating since September, 1919, when the steel strike began and only 163 furnaces were in blast. Of the merchant class in January, four stacks were blown in and 15 blown out or banked with a net loss of 11 stacks. Of the nonmerchant stacks, two were blown in and 12 blown out or banked with a net loss of 10.

**JANUARY PIG IRON**

| States | No. of stacks | No. in blast last day of month: January | December | Total tonnage made: Merchant | Nonmerchant | Totals: January | December |
|---|---|---|---|---|---|---|---|
| Pennsylvania | 161 | 70 | 74 | 99,167 | 731,259 | 830,426 | 910,680 |
| Ohio | 70 | 40 | 50 | 110,264 | 523,049 | 633,313 | 717,185 |
| Alabama | 45 | 15 | 15 | 61,413 | 80,013 | 141,426 | 150,505 |
| Virginia | 10 | 2 | 4 | 8,158 | ..... | 8,158 | 24,673 |
| New York | 28 | 12 | 15 | 72,560 | 69,146 | 141,706 | 176,825 |
| New Jersey | 5 | 1 | 0 | 3,071 | ..... | 3,071 | 6,207 |
| Illinois | 25 | 16 | 17 | 45,482 | 221,839 | 267,321 | 261,801 |
| Colorado | 6 | 3 | 3 | | | | |
| Indiana | 16 | 12 | 12 | 33,741 | 229,122 | 262,863 | 289,730 |
| Maryland | 8 | 1 | 1 | | | | |
| Wisconsin | 6 | 3 | 3 | | | | |
| Kentucky | 7 | 0 | 0 | | | | |
| West Virginia | 5 | 4 | 4 | 14,484 | 32,261 | 46,745 | 59,617 |
| Tennessee | 16 | 2 | 3 | | | | |
| Washington | 1 | 0 | 0 | | | | |
| Georgia | 2 | 0 | 0 | | | | |
| Texas | 1 | 0 | 0 | | | | |
| Minnesota | 3 | 2 | 3 | 10,350 | 39,743 | 50,093 | 65,936 |
| Michigan | 3 | 1 | 1 | | | | |
| Missouri | 1 | 1 | 1 | | | | |
| Spiegel and ferro—all states | .. | .. | .. | 11,398 | 15,773 | 27,171 | 37,109 |
| Totals | 435 | 184 | 205 | 470,088 | 1,942,205 | 2,412,293 | 2,700,268 |

## Blows Out Furnace After Good Production Run

Furnace A, the Youngstown Sheet and Tube Co., Youngstown, O., was blown out Jan. 27, after a remarkable production record. The lining, which was put into service on March 14, 1915, was found in good condition and appeared to be suitable for two years additional service, an opinion supported by its production of 551 tons on the last day of operation and its record for the previous 30 days.

**DIVISIONS OF PRODUCTION**

| 1920 | Merchant | Non-merchant | Spiegel | Ferromanganese | Other ferro |
|---|---|---|---|---|---|
| Jan. | 716,574 | 2,267,747 | 5,903 | 18,054 | 4,095 |
| Feb. | 735,707 | 2,215,079 | 11,755 | 18,015 | 3,701 |
| March | 863,167 | 2,474,018 | 15,472 | 19,203 | 3,908 |
| April | 761,231 | 1,958,535 | 6,600 | 18,036 | 8,168 |
| May | 808,751 | 2,140,346 | 10,744 | 21,536 | 10,448 |
| June | 769,236 | 2,233,565 | 8,510 | 26,870 | 8,442 |
| July | 791,440 | 2,209,128 | 6,925 | 28,347 | 8,078 |
| Aug. | 823,495 | 2,276,433 | 8,333 | 28,642 | 8,633 |
| Sept. | 798,111 | 2,277,607 | 11,849 | 27,697 | 9,044 |
| Oct. | 818,166 | 2,430,656 | 9,000 | 25,786 | 4,733 |
| Nov. | 705,014 | 2,190,217 | 11,006 | 23,298 | 5,546 |
| Dec. | 586,466 | 2,076,693 | 4,587 | 28,112 | 4,410 |
| Total | 9,177,458 | 26,750,024 | 110,684 | 283,596 | 79,206 |
| 1921 | | | | | |
| Jan. | 470,088 | 1,942,205 | 2,533 | 19,688 | 4,950 |

The stack was in operation 2087 out of a possible 2146 days, 59 days being lost on account of fuel shortage and other conditions. During this period 1,153,011 tons of iron or an average 552.5 tons per day, were produced. The best production for 24 hours was made Dec. 26, 1915, being 721 tons. The best monthly average was made in March, 1919, when it produced 634 tons per day. The furnace is rated at 500 tons per day. It is 88 feet high, 22 feet at the bosh, 16 feet at the hearth, and 16½ feet at the stock line.

## Accept Wage Reduction

Employes of the Inland Steel Co., at its Indiana Harbor works, who at first objected to a reduced wage schedule announced to take effect Jan. 24, have voted to accept the new scale.

# More British Material Reduced

## Wire Rods, Rails, Scotch Foundry and Middlesborough Basic Down $3.85, While Ferromanganese Is $15.40 and Wire $19.25 Lower—Finished Steel Market Also Weaker—French Iron Syndicates Dissolved

***The Iron Trade Review Staff Cable***

European Headquarters,
THE IRON TRADE REVIEW,
2-4 Caxton House, Westminster, S. W. 1

**Sterling—$3.85**

LONDON, Jan. 31.—Further reductions have been announced in the British iron and steel markets. Wire rods, rails, Scotch foundry iron and Middlesborough basic have been reduced £1 ($3.85). Spiegeleisen has been reduced £2 ($7.70), ferromanganese, £4 ($15.40), wire £5 ($19.25) and West Coast hematite, 15 shillings ($2.85) further. More furnaces are stopping.

Some export ferromanganese has been sold down to £25 ($96.25). Finished steel is generally weaker, while prices of iron bars and skelp are lower. Scrap is the weakest feature of the market, heavy melting steel being offered at £4 to £5 ($15.40 to $19.25) a ton.

Belgian competition is lessening, but continues to worry British mill interests. Belgian billets are offered at £10 ($38.50), tin bars at £10 10s ($40.42), beams £16 10s ($63.52) and nuts and bolt stocks at £15 5s ($54.85). Belgian exports of the prinripal iron and steel products in 1920 amounted to 850,000 tons as compared with 1,500,000 tons in 1913.

The British market for the lighter gages of sheets and tin plate is slightly more active.

German pig irons have been reduced to 275 marks. The French pig iron syndicates have been dissolved, presaging uncontrolled competitive prices.

# Belgians Fighting Each Other for British Trade

***European Staff Correspondence***

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,

**Sterling—$3.74**

BIRMINGHAM, Eng., Jan. 25.—Some effort has been made to restore the iron and steel trades to a working basis by reducing prices. Pig iron reductions have been general, covering all districts, chiefly as the result of the conference of coke makers who recently decided to reduce the price of furnace fuel, effective Jan. 1, to £2 15s, ($10.29) per ton on rail at the ovens, representing a reduction of 10 shillings 9 pence ($2.00) per ton. It also has been agreed to reduce output 25 per cent. The new price is understood to apply until the end of February. Simultaneously, Cleveland pig iron makers reduced their price for standard foundry quality 10 shillings ($1.87), making the new figure £10 15s ($40.21). East Coast hematite was reduced £1 ($3.74) making the home figure £12 ($44.88) for mixed numbers. The high class hematites on the West Coast were reduced a fortnight ago. Scotch hematite has been cut 15 shillings ($2.81), making the price £12 10s ($46.75) for delivery at the steelworks. A very substantial reduction has been made in Lincolnshire, where foundry iron has been reduced from £13 ($48.62) to £11 10s ($43.01), and forge materials from £12 5s ($45.82) to £11 ($41.14).

The makers of Midland brands, on the eve of the Birmingham quarterly meeting held Jan. 13, made reductions varying from £1 ($3.74) to £1 5s ($4.68) per ton. The price of Derbyshire gray forge became £11 5s ($42.08) f. o. t., and foundry £11 15s ($43.95), a reduction in this case of £1 5s ($4.68). Northamptonshire forge became £11 ($41.14) and foundry £11 10s ($43.01). Staffordshire material was similarly reduced, forge now being £11 7s 6d ($42.54) and foundry £12 ($44.88). For the present, Staffordshire cold-blast iron is an exception, remaining at £19 10s, ($72.93). This material is interesting chiefly to makers of the high class Staffordshire iron known as marked bars, and the foundries turning out rolls and other mill machinery. Prices for this foundry material are very high, and a reduction undoubtedly would have been made but for the comparative firmness of cold-blast material. But the production of this iron is barely enough to supply demands. It will be reduced nevertheless, and one order has been accepted at £18 ($67.32). On the West Coast, four furnaces have been damped down, three in Cumberland and one in Barrow. One of these has been making ferromanganese and the others low phosphorus iron. The reason assigned is the high price of fuel. For several years the West Coast furnaces have had a large trade with the Midlands and South Wales in the supply of low phosphorus iron for high class steel, but this demand has almost disappeared. There are only 20 furnaces in blast in that area.

It does not appear that reductions have stimulated business, orders being almost nonexistent, and all sales made are for immediate requirements. So little pig iron has been consumed lately that the scarcity has passed.

Steel price reductions are not at all like those of pig iron. It is understood that the steel manufacturers are to confer soon on the general situation. The Scotch makers who invariably register changes in market conditions more rapidly than the English, have announced reductions in boiler plates, ship plates and sections, but the cuts are slight, in most cases not more than 10 shillings ($1.87) per ton. Scotland is suffering not only from the slump in shipbuilding, but from keen foreign competition.

Those steelworks which have not suspended operations are on short time. Some of the largest and best equipped plants in England have not done a stroke of work since the Christmas holidays, and some were stopped a week or two earlier.

Price reductions in semifinished material have been substantial, and it is now possible to obtain British 2-inch billets for £16 ($59.84) to £17 ($63.58), a remarkable decline from summer prices, when some bookings were as high as £29 ($108.46). Instead of encouraging business this has merely stopped speculation, merchants decline to handle material in the present uncertain state of prices. As compared with the foregoing, some Belgian billets have been offered for delivery in Sheffield this week at £10 15s ($40.21). A more general figure is £11 ($41.14), but in one instance at least

# Current Iron and Steel Prices of Europe

## British Market

*Corrected to Date by Cable*

Home Market Prices. Gross Tons at Works or Furnace

| | £ s d | $ |
|---|---|---|
| **SEMIFINISHED STEEL** | | |
| Billets, soft steel | 15 0 0 | 57.75 |
| Sheet bars | 15 0 0 | 57.75 |
| Wire rods | 20 0 0 | 77.00 |
| **FINISHED STEEL** | | |
| Steel bars, England, ½ to 3-inch | 17 0 0 | 65.45 |
| Ship plates, England | 22 0 0 | 84.70 |
| Ship plates, Scotland | 22 0 0 | 84.70 |
| Beams, England | 22 0 0 | 84.70 |
| Beams, Scotland | 21 0 0 | 80.85 |
| Sheets, black, 24 gage | 25 0 0 | 96.25 |
| Sheets, galvanized, 24 gage | 28 0 0 | 107.80 |
| Rails, 60-lbs. and over | 20 0 0 | 77.00 |
| Tin plate, base box, 108 lbs. | 1 13 0 | 6.35 |
| Steel hoops | 23 0 0 | 88.55 |
| **PIG IRON*** | | |
| West Coast Hematite | 12 15 0 | 49.09 |
| Hematite, East Coast Mixed Numbers | 12 0 0 | 46.20 |
| Middlesborough, Basic | 10 0 0 | 38.50 |
| Middlesborough, No. 3 | 10 15 0 | 41.39 |
| No. 3 Foundry, Derby, Leicester, Nottingham | 11 12 6 | 44.76 |
| No. 3 Foundry, Northamptonshire | 11 0 0 | 42.35 |
| No. 2 Foundry, Staffordshire | 12 10 0 | 48.13 |
| No. 3 Scotch Foundry | 11 10 0 | 44.28 |
| Ferromanganese 80 per cent | 28 0 0 | 107.80 |
| **COKE** | | |
| Yorkshire furnace | 2 15 0 | 10.59 |
| Yorkshire foundry | 4 5 0 | 16.36 |

## French Market

*Prices Last Reported*

| | Francs per metric ton (2205 lbs.) | $ |
|---|---|---|
| **PIG IRON** | | |
| Hematite, Lorraine | 645 to 705 | 37.41 to 40.89 |
| Foundry, Longwy, 2 per cent Si., sand-cast | 450 | 26.10 |
| Foundry, Longwy, 2 per cent Si., chill-cast | 500 | 29.00 |
| Foundry, Longwy, 3 per cent Si., chill-cast | 447 | 25.93 |
| Foundry, Longwy, 3 per cent Si., chill-cast | 480 | 27.84 |
| **COKE** | | |
| French furnace | 135 | 7.83 |
| German, Belgian and British furnace | 135 | 7.83 |
| **SEMIFINISHED STEEL** | | |
| Blooms | 745 | 43.21 |
| Billets | 745 | 43.21 |
| Sheet bars | 745 | 43.21 |
| **FINISHED STEEL** | | |
| Merchant bars | 100 | 5.80 |
| Angles | 100 | 5.80 |
| Normal beams and profiles | 100 to 105 | 5.80 to 6.09 |
| *Plates, bridge and tank, 5 millimeters and thicker | 125 | 7.25 |
| *Sheets, black, 3 millimeters | 130 | 7.54 |
| Bars, cold-drawn, 40 to 60 millimeters round | 135 | 7.83 |

Pig iron prices are f.o.b. furnace; semifinished steel prices f.o.b. works; finished steel prices, according to the schedule of the Paris Consortium of Iron and Steel dealers delivered, except (*) which are from schedule of the Comptoir des Toles.

## Belgian Market

*Prices Last Reported*

| | Francs per metric ton (2205 lbs.) | $ |
|---|---|---|
| **PIG IRON** | | |
| Foundry, 3 per cent silicon, Belgium | 415 | 26.56 |
| Foundry, 3 per cent silicon, Luxemburg | 430 | 27.52 |
| Basic, open-hearth, Belgium | 415 | 26.56 |
| Basic-bessemer, Belgium | 400 | 25.60 |
| Basic-bessemer, Luxemburg | 450 | 28.80 |
| **SEMIFINISHED STEEL** | | |
| Blooms | 500 | 32.00 |
| Billets | 525 | 29.10 |
| Sheet bars | 575 | 36.80 |
| Wire rods | 775 | 49.60 |
| Standard rails | 700 | 44.80 |
| **FINISHED MATERIAL** | | |
| Merchant bars | 67.50 to 72.50 | 4.32 to 4.64 |
| Normal beams and profiles | 67.50 to 72.50 | 4.32 to 4.64 |
| Plain wire | ... | ..... |
| Plates, 5 millimeters and thicker | 87.50 | 5.60 |
| Plates, 3 to 5 millimeters | 90 | 5.76 |
| Sheets, black, 1 millimeter | 110 | 7.04 |
| Sheets, galv., 1 millimeter | 225 | 14.40 |

*Sold on same basis as semifinished material.

†Plus 50 francs for export.

All prices f.o.b. furnace or works, except finished material, for which delivered prices are quoted.

the Belgian manufacturer has raised his quotation to £11 10s ($43.01) doubtless because he is heavily booked. The Belgian makers, however, are fighting not only Englishmen, but each other for trade in this country. France has been seeking to sell some billets under £10 ($37.40) delivered.

Bedstead angles have been reduced £2 ($7.48), making the home price £19 ($71.06) and the export £19 17s 6d ($73.33). Lancashire crown steel bars for export have been reduced from £22 ($82.28) to £21 ($78.54) f. o. b. For the home trade, the price is about £20 ($74.80), works. Similar bars, rerolled from Belgian steel, can be bought in Birmingham for £18 ($67.32) to £20 ($74.80) according to latest information.

Belgian nut and bolt iron is coming into Birmingham at £14 10s ($54.23) and better material can be had at £18 ($67.32). Further reductions are regarded as a foregone conclusion as the mills are pressing merchants for orders.

Makers of Staffordshire tinned sheets made a fairly substantial reduction at the quarterly meeting Jan. 13, bringing best charcoal to £4 ($14.96) per 100 pounds, charcoal £3 15s ($14.03) and unassorted coke up to 20 gage £3 14s ($13.85). Best 20-gage lead-coated steel sheets have been reduced to £56 ($209.44) following a reduction of £4 ($14.96) at the previous quarterly meeting, which was held some time ago. Prices still continue to dwindle in the galvanized sheet trade, 24-gage corrugated being £29 ($108.46). Some sales have been made at £28 ($104.72). Most of the mills are idle and foreign business will await further reductions.

The extensive stoppage in the tin plate trade has at last had some effect on prices, which are quoted at £1 14s ($6.37) per box. Many makers will not start up their mills until prices are much higher, as the cost of production involves a loss of about 4 shillings ($0.76) per box on the basis of the present price. The official quotation for Welsh sheet and tin bars remains at £17 10s ($66.45), but much use is made of the foreign steel coming in at lower prices.

# Cheaper Coke To Affect French Prices

***European Staff Correspondence***

PARIS, Jan. 20.—The reduction in the price of furnace coke from 175 to 135 francs ($10.15 to $7.83) per ton, and that for steel plants and foundries from 175 to 200 francs ($15.95 to $11.60) is the most important feature of the trade at present. The national fuel bureau announces the possibility of fuel being entirely freed from government price control and distribution by March 1. This will affect production costs at once, and lead to adjustments on prices of iron and steel products in the opinion of producers.

**Franc—$0.058**

Exchange continues to remain at the high figure of approximately 17 francs to $1 and prevents any consideration of imports from America, and from England as well as sterling exchange is up to 61 francs to the pound.

An immediate response is looked for on the part of Belgium and Germany insofar as deliveries at nearby frontier points are concerned. Belgium will profit from cheaper production costs and Germany from the same and also from the debased value of the mark.

New tariffs will hardly be lower as all industries in France are arguing for still higher duties.

Hematite pig iron declined during the past week to 645 to 707 francs ($37.41 to $41) the metric ton, but the price of ordinary foundry iron has not been changed. The Comptoir de Longwy states that it is unable at present to fix base prices but that the industry may be assured of a speedy revision downward proportionate to fuel costs, as producers are already reaping the benefit.

The government is concerned over considerable unemployment in the metallurgical industries.

Difficulty is being encountered in arranging the new coal agreement with Germany. Germany insists firmly on continued payment by France, if 2,000,000 tons per month are to be mined by Germans and shipped to France. France states plainly that she can not pay the charge of 10 gold marks per ton which is demanded, and which is to be paid in cash independent of any war counter claims.

Prices of today in France are merely nominal. Until coal costs are readjusted, shapes and plates will not be affected by price reductions on coke. The situation remains critical for France in view of the steady infiltrations from Germany either direct or through Luxemburg.

The foundry situation has not changed. Bolts and rods are in the deadlock stage.

# Belgium Places Rail Equipment at Home

***European Special Correspondence***

BRUSSELS, Jan. 20.—The Belgian industry is on the qui vive as to developments in France as a result of the drop in the price of coke and the possible free trade in all fuels within a short time. Man for man, the Belgian worker turns out more than the Frenchman and with raw material costs no greater it is obvious that the trade contest which is to come will be more favorable for Belgium than for France in resisting German competition. British competition like that of America is not for the moment considered a factor in western continental Europe, owing to the state of exchange.

Foundry iron has been sold as low as 400 francs ($19.20) the ton in the past week, and there is a general sliding price scale downward with little stability foreseen in view of existing conditions in the home and foreign market. Fewer quantities of pig iron and semifinished products have been sent to England during the past fortnight than for some time and every effort is being made to turn out finished products, thus retaining most profits at home.

A few orders have been placed for beams and profiles at 650 francs ($41.60) the ton, and for merchant bars at 550 francs ($35.20) but these of themselves are no indication of prices which are current.

The "Made in Germany" legend is being written large upon all metallurgical products, and it is but natural that Belgium should feel its effects first. Belgium has always looked to Holland for a considerable export of finished iron and steel but at the present time it is claimed that country's imports are in favor of Germany to the extent of 75 per cent of the total.

**Franc—$0.064**

Orders for rails have been offered Belgian plants amounting to 70,000 tons since the first of the year but it is not known whether they were for home consumption or for export.

American locomotives recently delivered to Belgium have received praise for their traction on the level and grades, but otherwise are criticized for consumption of fuel. Cost of rolling stock production in Belgium is figured as 25 per cent for raw materials and 75 per cent for labor.

The state railways have placed orders with Charleroi plants for 700 passenger cars and 400 freight cars to be delivered during the coming year.

Piecework is rapidly gaining on the hour and day wage system of production in many transforming and fabricating plants throughout the iron and steel industries. The Belgian laborer and artisan is a very rapid and conscientious worker. The new scale appeals to him and almost entirely eliminates the debatable question of overtime.

## Report Official Figures on 1920 British Output

*Staff Correspondence*

London, Jan. 25.—The official figures prepared by the National Federation of Iron & Steel Manufacturers show that the production of pig iron in Great Britain was 8,000,700 tons in 1920 compared with 7,398,000 tons in 1919. The production of steel ingots and castings was 9,055,600 tons last year compared with 7,894,000 tons in 1919.

The production of pig iron which owing to the coal strike fell from 741,000 tons in September to 533,200 tons in October and 403,200 tons in November rose in December to 675,300 tons. The production of steel ingots and castings which fell from 884,700 tons in September to 544,300 tons in October and 505,100 tons in November rose to 745,400 tons in December. The pig iron production for December included 237,100 tons of hematite, 199,400 tons of basic, 147,700 tons of foundry and 58,600 tons of forge iron. The following tables give the production of pig iron and steel in each month of 1919 and 1920:

| | Pig iron | |
|---|---|---|
| | 1919 | 1920 |
| January | 661,000 | 665,000 |
| February | 626,000 | 645,000 |
| March | 691,000 | 699,000 |
| April | 647,000 | 671,000 |
| May | 671,000 | 739,000 |
| June | 658,000 | 726,000 |
| July | 641,000 | 750,600 |
| August | 521,000 | 752,400 |
| September | 581,000 | 741,000 |
| October | 445,000 | 533,200 |
| November | 624,000 | 403,200 |
| December | 632,000 | 675,300 |
| Total | 7,398,000 | 8,000,700 |

| | Steel ingots and castings | |
|---|---|---|
| January | 718,000 | 754,000 |
| February | 734,000 | 798,000 |
| March | 758,000 | 840,000 |
| April | 668,000 | 794,000 |
| May | 755,000 | 846,000 |
| June | 631,000 | 845,000 |
| July | 618,000 | 789,900 |
| August | 474,000 | 709,200 |
| September | 718,000 | 884,700 |
| October | 433,000 | 544,300 |
| November | 695,000 | 505,100 |
| December | 692,000 | 745,400 |
| Total | 7,894,000 | 9,055,600 |

The Whitlock Coil Pipe Co., Hartford, Conn., has increased its capital stock from $200,000 to $250,000.

# Pacific Coast

**Mills Still Idle—Western Market Conditions Summarized**

*Staff Correspondence*

San Francisco, Jan. 28.—Though the rolling mills on the Pacific coast have booked some small tonnages in the past few weeks for both domestic and foreign consumption, not enough new business has been secured to warrant resumption of blast operations. Optimism, however, is pronounced. The open-hearth furnace is being operated at the local plant of the Pacific Coast Steel Co. but it is understood that production is limited to stock replenishment. Some Belgium merchant bars have recently been offered as low as 3.00 cents, delivered, in San Francisco. The local interests have not been able to determine whether these quotations are to become a permanent factor in the bar market on the coast, and at present are inclined to believe they refer to resale material only.

The new year has failed so far to bring any improvement in the pig iron situation on the coast. Both mills and foundries still have considerable stocks on hand. As all the mills are closed and as most of the foundries are either closed or operating on part time with a greatly reduced force the market for pig iron is extremely listless. No. 2 southern, is being quoted at $52.50 and some foreign pig iron is being offered at $45 per (gross) ton, delivered, but no sales have been reported.

The same factors which have affected the pig iron market apply to the coke situation as well, with the result that no orders have been placed. A few inquiries have been received for June and July delivery.

Jobbers report an easing off of mill shipments and while no large orders are being received, numerous small ones are being filled and these are gradually relieving the congestion of stocks. Warehouse prices have not been reduced since the first of the year.

The prevailing prices in San Francisco are as follows: Steel bars, 5.00c; cold rolled shafting, 7.25c; blue annealed sheets, 6.76c; galvanized sheets, 9.50c; black sheets, 8.00c; shapes, 5.10c; bands, 5.80c; plates, 5.50c; and reinforcing bars, 5.25c.

In the scrap market, heavy melting steel has declined $4, a few small sales being made at $15, delivered. No. 1 cast iron scrap is quoted at $35, but this figure is purely nominal—no sales being reported. Small tonnages of brake shoes have been sold at $22. In general, the scrap market is dull.

A number of inquiries have been received by local exporters for prices on black and galvanized sheets, wire nails and rods and for tin plates. This is the first time in five or six months that any interest has been shown in the tin plate market. Most of the inquiries were for shipment out of New Orleans or New York. It is believed that these inquiries are merely "feelers."

Steamship companies are quoting $15 a ton on shipments out of Atlantic ports for Pacific ports on finished material. A number of new companies have announced their intentions of inaugurating regular sailing schedules between New York, Baltimore and Philadelphia and the Pacific coast ports, and the Williams Steamship Co. has four ships in the service. There is a feeling in the trade that a rate of 60 per cent or lower will soon prevail. Local jobbers have reported that shipment of blue annealed and galvanized sheets by water via the Panama canal have not proved satisfactory as the sheets have sweated going through the tropical climate One jobber reports that of approximately 700 bundles of sheets, received via the canal, over 350 bundles were so badly sweated and stained that they could not be marketed as new material.

## Re-elect Officers of Pig Iron Association

Pittsburgh, Feb. 1.—At the annual meeting of the American Pig Iron association held at the William Penn hotel, Jan. 26, all officers were re-elected for the ensuing year. These are as follows: Chairman, J. G. Butler Jr., Youngstown, O.; president, T. W. Friend, of the Clinton Iron & Steel Co., Pittsburgh; treasurer, F. B. Richards, M. A. Hanna & Co., Cleveland; and secretary, John A. Penton, of the Penton Publishing Co., Cleveland. Vice presidents for 1921 are:

Buffalo district, W. H. Donner, the Donner Steel Co., Buffalo; Chicago district, Seymour Wheeler, Pickands, Brown & Co., Chicago; Cleveland district, R. E. McMahon, M. A. Hanna & Co., Cleveland; Philadelphia district, W. W. Lukens, the Alan Wood Iron & Steel Co., Philadelphia; Southern district, Walter S. Reed, Sheffield Iron Corp., Sheffield, Ala.; and Virginia district, J. Banks Hudson, Princess Iron Corp., Glen Wilton, Va.

The usual routine business was taken up and some interesting discussion was brought out relative to various problems. Individual reports indicated the really radical extent to which pig iron production has been curtailed and it was developed that less than 500,000 tons of pig iron were being held in stock by merchant furnaces throughout the country. This is an average of less than three weeks' stock and curtailment continues because of the extended lack of demand. Because of the large under surface demand which pig iron producers see, however, they are not pessimistic over the outlook.

Orders are few and shipments are correspondingly light, and while various low prices are current there is a widespread unwillingness to pile iron on furnace banks at present costs. If users come into the market in any way commensurate with their normal requirements a shortage of pig iron will be created, it was stated. Some discussion arose over the proposed 1 per cent tax on gross sales.

## Malleable Makers Elect

The American Malleable Castings association, at its recent meeting in Cleveland, approved the tax report of the National Industrial Conference board and, in part, the proposals submitted in a referendum of the Chamber of Commerce of the United States. Edwin E. Walker, of the Erie Malleable Iron Co., Erie, Pa., was elected president; H. B. Parker, of the Albion Malleable Iron Co., Albion, Mich., and Frank J. Eppele, of the Trenton Malleable Iron Co., Trenton, N. J., were made vice presidents; and R. E. Belt was re-elected secretary-treasurer. John A. Penton, Cleveland, was elected honorary president. The following were made members of the research committee for a term of three years: W. C. McMahon of the Northwestern Malleable Iron Co., Milwaukee; A. Aigeltinger, of the American Malleables Co., Lancaster, N. Y., and J. S. Llewellyn of the Chicago Malleabe Castings Co., Chicago.

## To Announce Plans

Andrew Fletcher, President of the American Locomotive Co., 30 Church street, New York City, will issue a statement shortly relative to reports that the company contemplates the erection of a large plant near St. Louis. One of the early reports was contained recently in the St. Louis Chamber of Commerce bulletin, which stated that the Locomotive company had selected a large site at Granite City, Ill., for the erection of a locomotive works. In connection with the article, the names of several prominent steel men in the St. Louis manufacturing district are mentioned as being instrumental in bringing about the decision of the locomotive company to build a plant at St. Louis.

# Foreign Buyers Take Less

## Large Reduc ion of Their Purchases of Iron and Steel Reflected by the Total Tonnage Exported by American Manufacturers—November Figures Show Declines to Leading Consumers of Pig Iron, Semifinished and Other Materials

DISTRIBUTION of the export tonnages of iron and steel products from month to month reflects the extent to which the countries which are the largest regular buyers of American material, are active in the market. While this may not be true of all products and of all countries buying from the United States, it is the case in the long run. Analysis of the November statistics supplied by the bureau of foreign and domestic commerce indicates this.

Taking pig iron, as an example, it is found that the November exports of 13,929 tons were 3367 tons under October. How this drop came about may be seen in the fact the United Kingdom took only 884 tons, or 3480 tons less than in October, and Canada 6733 tons, or 1811 tons under the preceding month. This difference of 5291 tons was lessened by Italy's gain of 1693 tons and increases in tonnages imported by other countries from the United States. Japan, an important factor a year ago, was entirely out of the market, according to the November, 1920, figures.

The decline of 4811 tons in semifinished material in November, compared with October, was due, if for no other reason, to the fact the United Kingdom received only 6027 tons, a drop of 4007 tons from October. Italy's 711 tons in October fell to zero in November. Canada's November figure of 792 tons compares with 963 tons in October.

On the other hand, exports of steel rails increased in November, the tonnage, 67,708, being 14,442 tons greater than in October. This increase was due largely to Cuba's taking 16,288 tons, a gain of nearly 5000 tons; Brazil's receiving 10,182 tons; and increases in tonnages to other countries not listed among the principal buyers.

Italy and the United Kingdom took smaller tonnages of plates in November while the exports of this material to France, Canada and Japan were slightly larger. In tin plate, Canada's imports of the American product were less as were those of Brazil, China, Hongkong and Japan. In black sheets exports to Canada and Japan also were less. With the exception of Argentina, the outgoing shipments of structural shapes were smaller to all countries in November.

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Frederick T. Harris, Providence, R. I., maker of fine wire, has been petitioned in bankruptcy by three creditors whose claims aggregate $2000. Robert Grieve has been appointed receiver.

## Steel Exports to Principal Foreign Consumers

### PIG IRON

| | Belgium | Italy | United Kingdom | Canada | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 300 | 1,994 | 884 | 6,733 | .... | 13,929 |
| November, 1919 | .... | 305 | 3,645 | 1,242 | 12,239 | 21,429 |
| October, 1920 | 642 | 301 | 4,324 | 8,544 | .... | 17,296 |
| October, 1919 | .... | 2,785 | 2,800 | 1,046 | 2,998 | 14,108 |
| **September, 1920** | **2,437** | **2,365** | **972** | **6,027** | .... | **22,734** |
| **September, 1919** | .... | **7,197** | **2,101** | **1,746** | **2,321** | **18,991** |
| 1920 to date | 28,680 | 35,707 | 14,551 | 50,610 | 13,448 | 206,829 |
| 1919 to date | .... | 136,197 | 44,728 | 31,840 | 45,244 | 306,749 |

### BLOOMS, BILLETS AND INGOTS

| | Belgium | France | Italy | United Kingdom | Canada | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 50 | 1 | .... | 6,027 | 792 | 7,042 |
| November, 1919 | .... | 360 | 197 | 11,054 | 292 | 13,211 |
| October, 1920 | .... | .... | 711 | 10,034 | 963 | 11,853 |
| October, 1919 | .... | 4,366 | 5,794 | 11,892 | 257 | 20,713 |
| **September, 1920** | .... | .... | **106** | **14,873** | **684** | **18,113** |
| **September, 1919** | .... | **4,767** | **15,637** | **15,300** | **474** | **37,513** |
| 1920 to date | 42,455 | 3,015 | 21,090 | 130,953 | 7,800 | 213,458 |
| 1919 to date | .... | 80,279 | 43,010 | 95,174 | 9,802 | 216,173 |

### STEEL PLATES

| | France | Italy | United Kingdom | Canada | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 3,609 | 1,189 | 17,363 | 21,728 | 3,433 | 79,420 |
| November, 1919 | 747 | 5,300 | 1,479 | 11,868 | 30,345 | 63,680 |
| October, 1920 | 1,659 | 9,241 | 21,624 | 16,750 | 2,350 | 91,087 |
| October, 1919 | 3,287 | .... | 2,883 | 13,360 | 11,379 | 41,669 |
| **September, 1920** | **1,660** | **2,347** | **14,157** | **17,877** | **13,740** | **75,607** |
| **September, 1919** | **1,264** | **3,985** | **5,895** | **14,604** | **20,969** | **52,853** |
| 1920 to date | 27,437 | 31,644 | 109,631 | 180,017 | 215,443 | 8[illegible] |
| 1919 to date | 63,983 | 60,714 | 29,840 | 170,127 | 217,305 | 663,223 |

### STRUCTURAL SHAPES

| | France | Canada | Cuba | Argentina | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 924 | 9,273 | 5,858 | 8,047 | 1,971 | 42,839 |
| November, 1919 | 2,752 | 4,952 | 3,264 | 1,919 | 2,675 | 23,939 |
| October, 1920 | 2,628 | 15,708 | 7,441 | 3,801 | 6,306 | 53,989 |
| October, 1919 | 6,091 | 6,255 | 3,748 | 1,513 | 2,079 | 26,641 |
| **September, 1920** | **1,425** | **11,905** | **4,491** | **2,372** | **6,032** | **60,135** |
| **September, 1919** | **1,630** | **7,079** | **2,421** | **1,065** | **2,115** | **21,938** |
| 1920 to date | 17,941 | 119,[illegible] | 39,[illegible] | 28,[illegible] | 84,[illegible] | 4[illegible] |
| 1919 to date | 79,326 | 93,539 | 20,979 | 12,590 | 48,521 | 345,177 |

### BLACK SHEETS

| | France | Canada | Argentina | Brazil | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 383 | 5,787 | 2,741 | 521 | 1,807 | 16,063 |
| November, 1919 | 281 | 4,074 | 873 | 261 | 6,303 | 13,146 |
| October, 1920 | 135 | 7,206 | 1,435 | 393 | 3,182 | 17,128 |
| October, 1919 | 1,297 | 2,573 | 1,414 | 569 | 5,772 | 13,860 |
| **September, 1920** | **64** | **6,487** | **1,810** | **335** | **2,081** | **13,887** |
| **September, 1919** | **840** | **4,377** | **836** | **208** | **4,536** | **13,379** |
| 1920 to date | 1,528 | 55,209 | 10,983 | 2,613 | 52,720 | 161,512 |
| 1919 to date | 21,252 | 46,971 | 8,436 | 3,982 | 37,244 | 168,891 |

### STEEL RAILS

| | France | Cuba | Brazil | Japan | All countries |
|---|---|---|---|---|---|
| November, 1920 | .... | 16,288 | 10,182 | 1,817 | 67,708 |
| November, 1919 | 3,362 | 6,680 | 1,299 | 24,168 | 54,336 |
| October, 1920 | .... | 11,983 | 6,518 | 4,745 | 53,266 |
| October, 1919 | 1,726 | 6,454 | 2,758 | 13,505 | 43,730 |
| **September, 1920** | .... | **6,135** | **4,670** | **2,015** | **31,170** |
| **September, 1919** | **2,149** | **6,325** | **430** | **24,373** | **58,434** |
| 1920 to date | 11,090 | 108,487 | 48,771 | 132,407 | 541,618 |
| 1919 to date | 140,830 | 52,643 | 8,730 | 142,501 | 618,394 |

### TIN PLATE

| | Canada | Brazil | China | Hongkong | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 3,426 | 1,427 | 3,469 | 144 | 951 | 15,423 |
| November, 1919 | 4,332 | 679 | 1,937 | 230 | 9,059 | 18,934 |
| October, 1920 | 5,939 | 1,484 | 4,322 | 159 | 1,438 | 20,287 |
| October, 1919 | 2,910 | 1,049 | 268 | 300 | 4,816 | 11,938 |
| **September, 1920** | **5,809** | **2,717** | **432** | **216** | **807** | **13,223** |
| **September, 1919** | **3,632** | **320** | **550** | **1,785** | **7,670** | **16,887** |
| 1920 to date | 61,512 | 21,490 | 17,078 | 7,114 | 47,889 | 205,432 |
| 1919 to date | 33,258 | 13,753 | 14,966 | 7,591 | 39,831 | 189,135 |

### WROUGHT PIPE

| | Mexico | Cuba | British India | Dutch E. Indies | Japan | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 10,238 | 2,338 | 1,444 | 2,370 | 432 | 25,315 |
| November, 1919 | 2,747 | 937 | 1,132 | 371 | 2,723 | 15,151 |
| October, 1920 | 9,895 | 2,179 | 2,014 | 721 | 1,332 | 24,537 |
| October, 1919 | 3,314 | 1,412 | 2,045 | 2,423 | 1,752 | 17,489 |
| **September, 1920** | **6,302** | **1,760** | **1,895** | **129** | **662** | **19,215** |
| **September, 1919** | **7,398** | **1,204** | **1,425** | **250** | **1,168** | **17,159** |
| 1920 to date | 81,867 | 17,489 | 20,259 | 6,796 | 28,631 | 246,592 |
| 1919 to date | 45,056 | 9,570 | 25,871 | 16,940 | 24,684 | 224,575 |

### BARBED WIRE

| Period | Canada | Cuba | Argentina | Brazil | Colombia | All countries |
|---|---|---|---|---|---|---|
| November, 1920 | 3,141 | 1,297 | 3,915 | 3,341 | 308 | 15,507 |
| November, 1919 | 803 | 1,958 | 1,949 | 1,892 | 615 | 8,665 |
| October, 1920 | 1,441 | 2,503 | 1,609 | 2,986 | 452 | 13,654 |
| October, 1919 | 923 | 1,911 | 1,751 | 4,099 | 672 | 11,710 |
| **September, 1920** | **760** | **625** | **1,701** | **1,686** | **230** | **6,464** |
| **September, 1919** | **388** | **1,489** | **2,745** | **1,762** | **378** | **9,514** |
| 1920 to date | 20,902 | 12,810 | 16,849 | 28,899 | 6,301 | 115,771 |
| 1919 to date | 20,302 | 11,618 | 11,484 | 24,089 | 4,726 | 91,287 |

# Churchmen Predict Steel Strike

## Members of Interchurch World Investigation Commission Urge Senators To Publish Their Report at Government Expense—"Arbitrary Thrusting Down of Wages Rousing Workers," Is Claim—Senate Committee Divided on Issue

WASHINGTON, Feb. 1.—Another great steel strike has been made inevitable by the failure of the steel producers to remedy evils credited with having precipitated the strike in 1919, and the proposed "arbitrary thrusting down" of wages will hasten this strike and make it more sanguinary than the last one. This was the statement made a few days ago to members of the senate committee on education and labor by members and officers of the Interchurch World Movement commission which investigated and issued a report on the steel strike.

The predictions of further labor troubles came in the course of a hearing on the resolution by Senator Thomas J. Walsh, Montana, seeking the publication of the Interchurch World report as a public document and inquiring into the feasibility of proceeding with the recommendations contained in that report. Only proponents of the report were heard and while a majority of committee members present signified their willingness to give the report further circulation, no action was taken.

"I look for trouble," declared Bishop Francis J. McConnell, of Pittsburgh, chairman of the Interchurch World steel investigating commission, in answer to a question by Senator David I. Walsh, Massachusetts. "The grievances of the steel workmen are deep-seated; they have not been touched or remedied since the ending of the strike. While I have not been directly in touch with the labor situation, I am reading continually of the plans to unionize and organize the men. I fear trouble again."

### *Says Strike Was Orderly*

Even more to the point was the statement of Alva W. Taylor, a member of the strike commission. He said, in part:

"This last strike was an orderly one, conducted by organizers along regulation American Federation of Labor lines. As a result of the failure of the strike, the radical element has been given the opportunity to say to the men that they cannot hope to win with the federation, that they must strike out along other lines. The next strike, I fear, will be along the lines of the 'one big union.' Trouble will be hastened by the proposed plan of thrusting down wages. In the steel industry this thrusting down will be arbitrary, the men will have no voice, as in other industries. And when wages are thrust down without the men being consulted, then the flames will burst forth again."

As a result of questioning by senators, an exhaustive explanation of the method of investigation by the Interchurch World commission was developed. In answer to questions, members of the commission denied emphatically that William Z. Foster or John Fitzpatrick, radical leaders of the 1919 steel strike, had written a line of the Interchurch World report. Foster and Fitzpatrick as well as 17 or 18 other union organizers were quizzed by the commission, Bishop McConnell asserted, but at no time did they have a hand in compiling the report.

Condemnation by members of the commission was directed more to the system than the officers of the steel producers, and little criticism was aimed directly at officials of the United States Steel Corp. It was the lack of a link between the workmen in the mills and the executive officers of the corporation that was responsible for the 1919 strike, the churchmen declared. They placed the blame wholly upon foremen in the mills, whom they contended kept grievances and requests from going higher.

E. H. Gary, chairman of the Steel corporation, was quoted by Bishop McConnell as admitting the principle of collective bargaining but of not having had presented to him a plan to which he could subscribe. This developed a line of questioning, especially by Senator Lawrence C. Phipps, Colorado, as to why the so-called Rockefeller plan failed to keep the workmen of the Colorado Fuel & Iron Co. from striking in 1919. Thereupon Daniel A. Poling, vice chairman of the Interchurch World commission, quoted an unnamed executive of the Colorado company as stating last December that the Colorado strike in 1919 was caused not by the failure of the Rockefeller plan but because of the failure of the Steel corporation to have any plan at all.

"I have no confidence in this Foster and under no circumstances would I vote to give publicity to anything he has said or done," declared Senator Kenneth McKellar, Tennessee. "He is an unamerican citizen and is an undesirable man to listen to. From the hasty perusal I have given the Interchurch World report I should judge it to be largely a criticism of the report of the senate committee which investigated the strike."

### *Long Hours, Only Objection*

Senator Phipps agreed with Senator McKellar that the only complaint to be lodged against the steel industry was that of long hours. Some of the workmen's homes he had visited in the Pittsburgh district compared favorably with his own, Senator McKellar stated, while not a single complaint was to be heard as to wages. The only black spot, as seen by Senator McKellar, was the 12-hour day and the 7-day week, where they existed. It was questioning by Senator Phipps that drew from Mr. Poling the admission that the Interchurch World report on the strike had something to do with the dissolution of the movement, but it was claimed by Mr. Poling that the report also made friends.

The query by Chairman Kenyon, of the senate committee: "Just what business had your commission in investigating the strike?" elicited from Mr. Taylor the answer that the churches considered the strike "a great human, moral question." The christianization of the world rests largely upon the interest taken by labor in the church, Mr. Taylor continued, and the day has arrived, he maintained, when the church must take an active interest in labor. Conditions prevalent in the steel industry, both in 1919 and today, are not conducive to christianization, he asserted.

Asked as to what pressure, if any, was brought to prevent publicity being given to the steel strike report, Bishop McConnell named two Pittsburgh men, "a Mr. Follansbee" and "a Mr. Horner." Mr. Horner, Bishop McConnell said, was a Methodist and had taken great interest in the Interchurch World movement. Mr. Follansbee, a Presbyterian, had interested himself in church work kindred to that furthered by the movement, it was explained. Both Mr. Follansbee and Mr. Horner had appeared before the executive committee of the movement to protest against the characterizations in the report, which they contended were erroneous, Bishop McConnell said.

Entire responsibility for introducing his resolution was assumed by

Senator Walsh. From reading newspaper reports he had judged that behind the 1919 strike was a concerted attempt to overthrow industry and eventually the government, he said, but on reading the Interchurch World report he had become convinced that a wrong impression had been given out by the press. Bishop McConnell interjected that some 7000 copies of the report have been sold, while Mr. Poling said the report had been so generally received that it was now being used as a textbook. Here Senator Phipps volunteered the information that the leading bookseller in his home city, Denver, reported selling exactly one copy in the months the report has been in print.

"It is for the influence on public opinion that we would like to see the report more widely circulated," said Bishop McConnell. A second volume on the strike is shortly to make its appearance, he continued, this volume to contain reports by M. Karl Wisehart, Robert Littell, George Soule, David J. Saposs and Miss Marian D. Savage on such subjects as family budgets and living conditions, the negro in the steel industry, under-cover men, civil liberties and the pulpit and the strike.

Chairman Kenyon turned over to Secretary Blankenhorn, of the Interchurch World commission, a statement presented recently to the senate committee by W. S. Horner, of Pittsburgh, president of the National Association of Sheet and Tin Plate Manufacturers. This statement, which apparently was sent as a confidential document to members of the association under date of Dec. 22, 1920, consisted largely of a survey and summary of the Interchurch World report by C. L. Patterson, secretary of the association's bureau of labor. Mr. Horner said:

"It must be evident to all of our members who have read the Interchurch report that it will be construed as a bitter attack not only upon the entire steel industry but also upon the men responsible for the management and operation of the industry; that it contains much that if not false and venomous is at least erroneous and misleading, and that due to publicity * * * has created dangerous and unjustifiable prejudice."

A reply is to be made to the senate committee by Mr. Blankenhorn.

## Trade Union Declares for Open Shop

The Buffalo local union No. 665 of the United Association of Plumbers and Steam Fitters of the United States and Canada, has decided to give the open shop a trial. Resolutions adopted by the local Dec. 22 state that "in prescribing the limitations which should govern our relations with our local employers, our international body has been greatly influenced by the unsound, unjust and therefore unamerican doctrines of the American Federation of Labor." The local then precedes to sever all connection with the United association and "unreservedly endorse the principles of the American plan open shop and pledge the combined effort of its membership to the upholding and extension of that policy."

The resolutions further state that the local is opposed to "every form of limitation of output, every restriction as regards the number of apprentices, "and pledge the officers to issue membership cards "to only such men as can prove unquestioned ability."

The local is resolved "to use every fair means possible to maintain present wage scales and hours of labor, confidence in ability to do this being based upon the belief that the increased production, freedom from outside dictation will enable us to deliver will make all the reduction in costs our employers can fairly ask for the time being."

## Chamber Issues Report on Incentive Plans

The value of Cleveland industrial incentive plans for promoting efficiency and harmony in employment relations during the present period of business readjustment is illustrated in a recently made public report by the Cleveland chamber of commerce, as prepared by the committee on labor relations. Six hundred leading Cleveland industries employing normally about 210,000 people, were studied. Of these 19 per cent were found to maintain some form of profit sharing, bonus or stock sales plan, classified by the report as "group incentives."

A feature of the report is the chamber's announcement of certain basic principles, which in its opinion should underlie an incentive plan in order to insure success, as follows:

An incentive plan should have as its fundamental purpose the increasing of the value of employes' services both to themselves and to their employer.

Such a plan should serve to promote confidence and understanding between the employer and employes.

The benefits of the employes should be substantial and in addition to the current rate of wages.

The plan should not represent paternalism or philanthropy on the employer's part.

The participants in the plan should be informed as to the factors affecting the payment and the amount of the incentive.

They should, preferably, be represented in the administration of the incentive plan.

The plan should be designed to meet the needs of each enterprise and to accomplish the worthy objects of the employer.

The success of any plan is particularly dependent upon the effectiveness of its management.

## Drug Trade

### Interested in By-Products but Little Buying Is Being Done

New York, Feb. 1.—Sulphate of ammonia is now being quoted freely at a nominal price of $3.25, f.o.b. works. Until recently, a range of $3.25 to $3.50 was quoted. Trading is at a standstill. There is practically no inquiry, either for spot or future shipment, and as a result, stocks are heavy.

During the past week, there has been an improvement in inquiry for benzol and solvent naphtha, the drug trade in particular displaying more interest. This has resulted in but little increase in buying. Demand for toluol continues listless. Prices on all three of the foregoing products are unchanged. Pure benzol is quoted at 30 to 36 cents per gallon, f.o.b. works; 90 per cent benzol, 29 to 34 cents; solvent naphtha, 29c to 34c, and toluol at 30c to 36c. Present trading in these descriptions is for spot shipment.

Some buying of naphthalene continues, although this, on the other hand, is all for future delivery and in the aggregate is not large. Flakes are still being quoted at 9 to 10 cents, producers' plants, and balls, 10 to 11 cents, applying to both spot and future offers.

Possibly the most encouraging feature in the situation is the continued demand for motor fuel. Buying by England as well as by this country is of substantial volume, and as a result there is not a large accumulation of benzol, toluol and solvent naphtha, which are its constituent parts.

### Coke Oven By-Products

**Spot**

Per Gallon at Producers' Plants

| | |
|---|---|
| Pure benzol | $0.30 to .36 |
| Toluol | .30 to .36 |
| Solvent naphtha | .29 to .34 |

Per Pound at Producers' Plants

| | |
|---|---|
| Phenol | nominal |
| Naphthalene, flake | $0.09 to .10 |
| Naphthalene, balls | .10 to .11 |

Per 100 Pounds at Producers' Plants

| | |
|---|---|
| Sulphate of ammonia | $3.25 |

**Contract**

| | |
|---|---|
| Pure benzol | $0.30 to .36 |
| Toluol | .30 to .36 |
| Solvent naphtha | .29 to .34 |

Per Pound at Producers' Plants

| | |
|---|---|
| Phenol | nominal |
| Naphthalene, flake | $0.09 to .10 |
| Naphthalene, balls | .10 to .11 |

Per 100 Pounds at Producers' Plants

| | |
|---|---|
| Sulphate of ammonia | nominal |

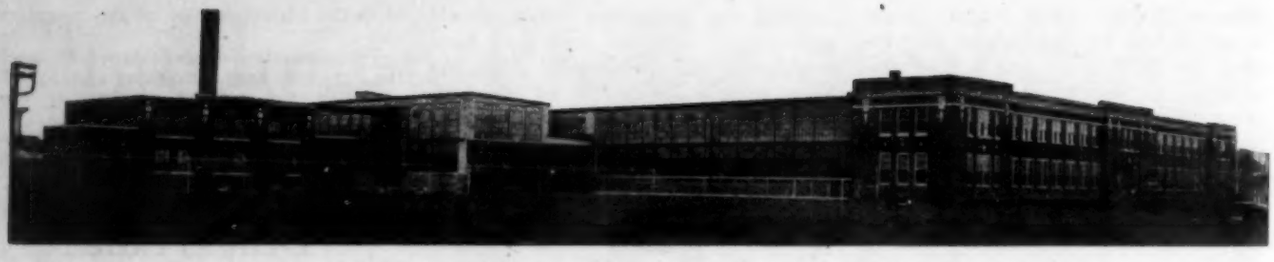


Fig. 1—General view of new plant showing boiler house at left and main building with 2-story office structure at the right

# Tool Plant Reflects New Ideas

## Arrangement of Equipment and Material Handling Facilities Is Outstanding Feature of New Machine Tool Plant in Cleveland—Flexibility in Design Permits Enlargements Without Reconstruction—Lighting System Is Adequate

BY DANN O. TABER

CHANGES in the design and construction of industrial plants erected during the past five years have reflected a decided tendency toward the installation of improved facilities for handling material. Plant engineers first endeavored to reduce to a minimum the number of processes involving manual labor and to introduce mechanical substitutes. At the present time they are going a step farther and are seeking additional economies by anticipating the solution of production problems when planning the buildings and arranging the equipment of a projected plant.

It has been found that foresight exercised in this manner results in greater efficiency and lower production costs due to the fact that unnecessary duplication of effort is eliminated and materials pass from the raw or semifinished state to the finished product without unnecessary loss of time. Much of the advance in this direction which has been made in the past few years has been due to the rapid development and more general application of cranes, industrial trucking systems and other conveying apparatus. Another important factor has been the arrangement of the various departments within a plant and in turn, the machinery and equipment within each department so that the material passes readily from one stage of production to another in the logical sequence so that there is little if any backtracking and unnecessary handling.

### *Has Adequate Switching Facilities*

The tendency to adopt these different ideas in plant design is reflected to an unusual degree in the new plant of the Foote-Burt Co., which recently was completed on a 7-acre plot at 131st street and St. Clair avenue, Cleveland. As shown in Fig. 3, the plant faces St. Clair avenue and is adjacent to the Cleveland Belt Line railway, which provides switching facilities with the New York Central, Pennsylvania and other lines entering Cleveland. Electric power, which is furnished by the municipal lighting service, is transformed from a line voltage of 2300 volts to 440 and 110 volts for use in the plant.

All manufacturing operations are housed in a main building, shown in Fig. 1 which has a floor space of approximately three acres. The boilers for heating the main building and the transformers for stepping down the voltage from the power line, are situated in another building southeast of the main building, as shown in the ground plan, Fig. 3. The main building, which is of brick and concrete construction, was erected by the Boldt Construction Co., Cleveland, general contractors. As indicated in Fig. 1, a liberal portion of the side walls is devoted to continuous windows which provide adequate natural lighting for all parts of the plant. The steel sash was manufactured by the Truscon Steel Co., Youngstown, O. The roof is of precast concrete slabs, 2 x 6 feet x 1¾ inches, covered with gravel and tar. The slabs were prepared by the American Cement Tile Co., Pittsburgh. The floors throughout the plant are laid with wood block, manufactured by the Republic Creosoting Co., Indianapolis. Geo. S. Rider & Co., Cleveland, were the architects. Upon entering the new tool plant the visitor is at once struck with the unusual care evidenced in all departments to provide convenient mechanical aids for

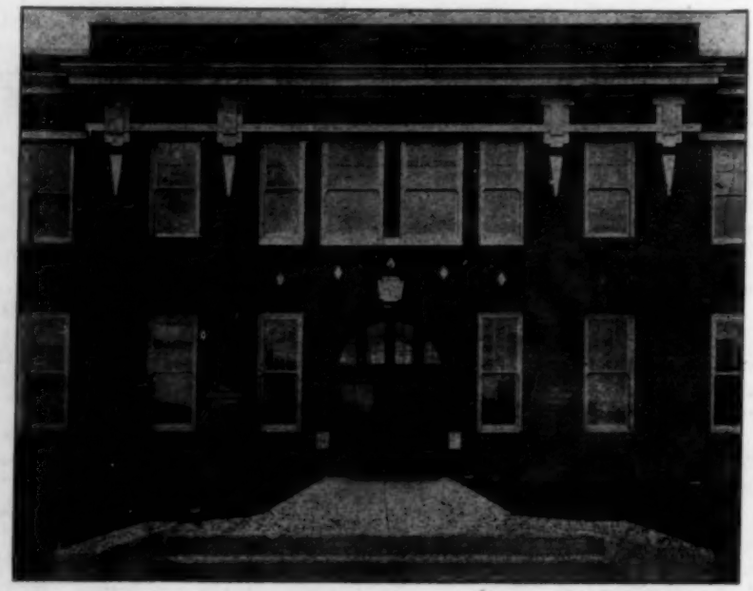


FIG. 2—ENTRANCE TO THE OFFICES OF THE NEW PLANT

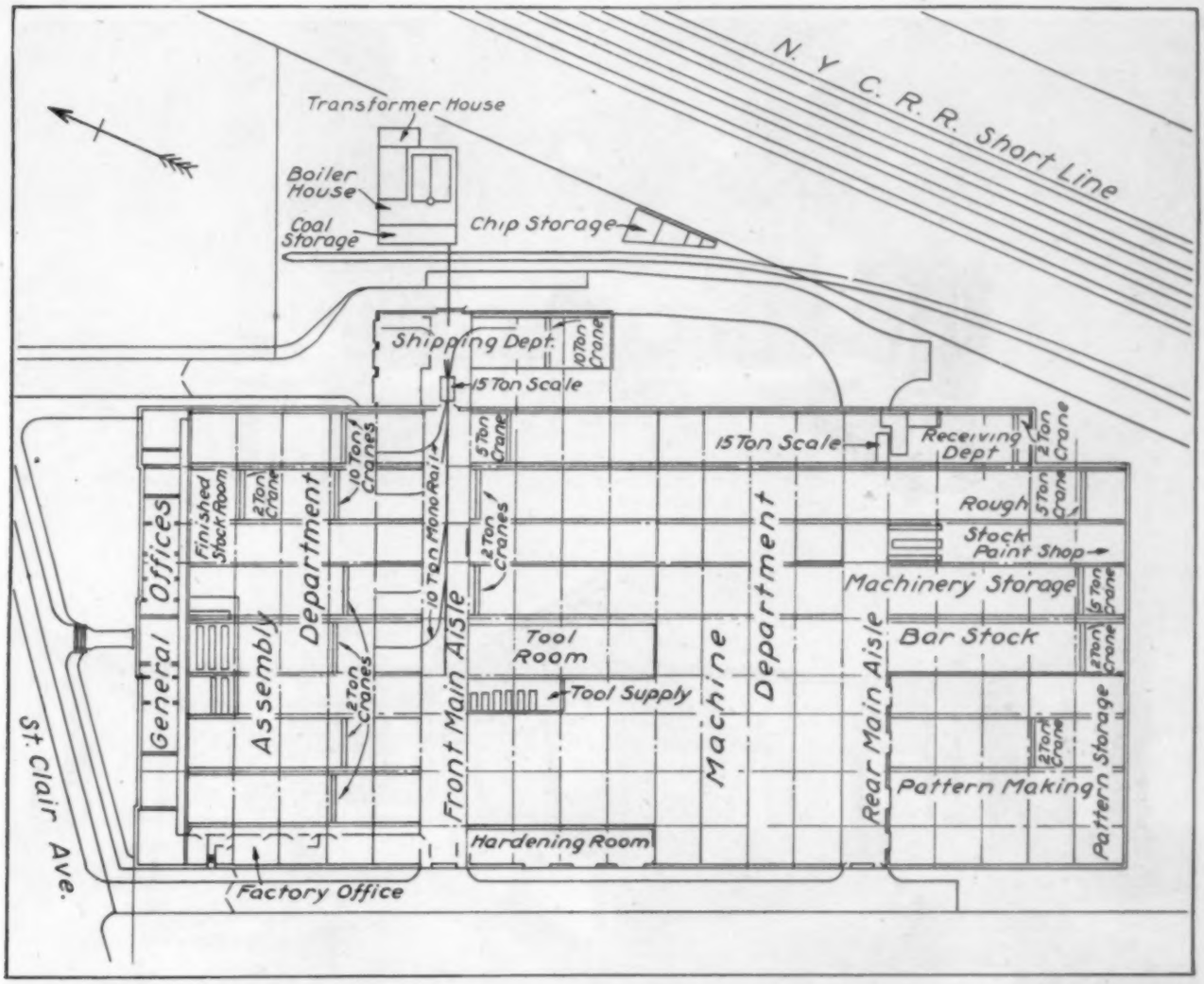



FIG. 3—GROUND PLAN OF THE PLANT OF THE FOOTE-BURT CO. SHOWING THE LOCATION OF DEPARTMENTS AND THE ARRANGEMENT OF THE EQUIPMENT. NOTE THAT THE MAIN BUILDING IS DIVIDED INTO THREE MAJOR DIVISIONS BY TWO WIDE AISLES

the workmen. The arrangement of the traveling cranes is clearly indicated in Fig. 3, which shows that within the main building there are no less than two 10-ton, three 5-ton and ten 2-ton traveling cranes and a 10-ton monorail system. The 2 and 5-ton cranes and the monorail hoists were built by the Barber-Foster Engineering Co., Cleveland, and the 10-ton cranes were manufactured by the Shaw Crane Works, Muskegon, Mich. Additional transportation facilities are provided by two storage battery trucks built by the Elwell-Parker Electric Co., Cleveland. One of these trucks is equipped with a lifting platform. As indicated in Fig. 3, the material is received in the southeast corner of the plant where a 15-ton platform scale manufactured by the Fairbanks Co., New York, is provided for weighing incoming supplies. After being weighed the raw and semifinished material is carried by means of a 2-ton crane to its proper position in the stock room. In this department neat racks for bar stock have been provided and the company has established standard colors for designating various grades of bar iron and steel. Suitable bins and platforms for light castings, forging, bolts, screws, nuts, etc., also form part of the equipment in this department.

### *Rolling Plan Simplifies Operation*

Further reference to Fig. 3 will indicate the plan of routing forgings, castings and other material from the receiving department to the various machines and from there to the assembly department and finally to the shipping room. The main building is roughly divided into three major parts by two wide aisles, one of which is shown in Fig. 10. Incoming material is handled in the rear main aisle while the finished product is handled in the front main aisle. All of the equipment between the two main aisles is devoted to machining operations while the part of the plant north of the front main aisle is devoted exclusively to assembly work. All the incoming material is conveyed from the receiving department to the machining department by means of the various cranes and trucks already mentioned. The machines in this middle bay or machining department are arranged in batteries according to the type of work which they perform. The planers are grouped together in the southeast corner of the department and are served by a 5-ton traveling crane. The shapers, lathes, turret lathes, milling machines, gear cutters, grinders, drills, etc., are likewise grouped in various parts of the department. The aisles separating these various groups extend from north to south and are of ample width to permit the electric conveying trucks to pass without interfering with the work in any way.

The method of driving machines, the location of motors, etc., have been standardized wherever possible. Fig. 8, which indicates a cross section of one of the bays, illustrates the flexibility afforded by this method of standardization. The 18-inch I-beam girders

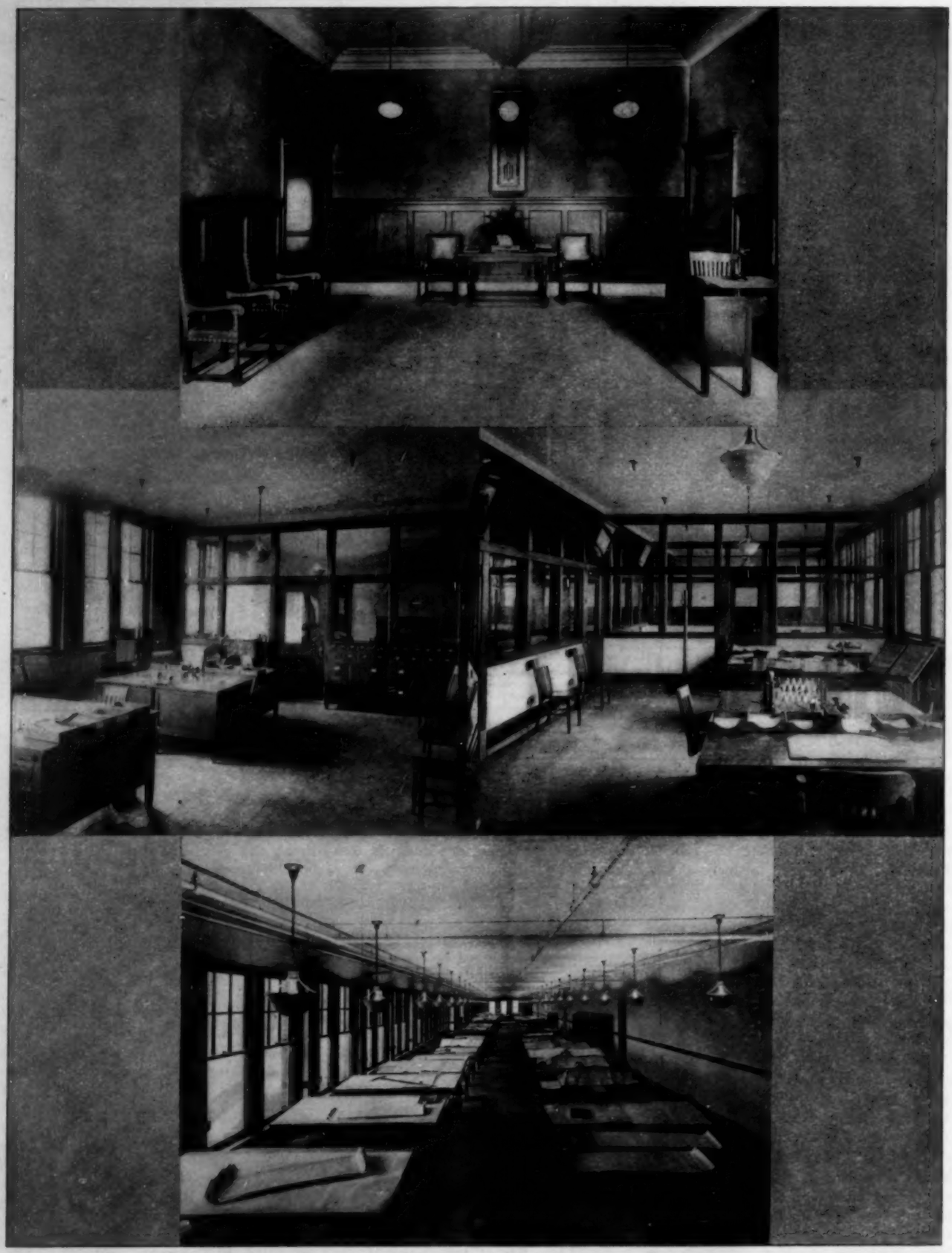


FIG. 4—THIS ATTRACTIVE RECEPTION ROOM IS IN THE CENTER OF THE LOWER FLOOR OF THE OFFICE BUILDING. FIGS. 5 AND 6—THE OFFICES ON THE FIRST FLOOR HAVE GOOD NATURAL LIGHT. NOTE THAT THE PIPES FOR THE SPRINKLER SYSTEM ARE NOT VISIBLE, ONLY THE OUTLETS SHOWING BENEATH THE CEILING. FIG. 7—THE DRAFTING ROOM, WHICH IS ON THE SECOND FLOOR OF THE OFFICE BUILDING, HAS ACCOMMODATIONS FOR 100 DRAFTSMEN. THE INDIRECT LIGHTING SYSTEM HAS BEEN WORKED OUT SO THAT IT IS ALMOST IMPOSSIBLE TO PRODUCE A SHADOW ON THE DRAWING BOARDS

may be utilized at any time when required, as crane girders. At convenient intervals the girders are connected by pairs of channels placed back to back. The shaft hangers are fastened to the channels by means of bolts extending between the beams, an arrangement permitting the line shafts to be moved from time to time as necessity dictates without weakening the beams by drilling. It is said that the construction is rigid and is not affected by vibration. This design also facilitates the adjustment of shafting which is out of alignment. The shafting is lined up at regular intervals by hanging a target near the far end of the shaft and lining the shafting up with it by a surveyor's level. A section across the south border of the front main aisle is shown in Fig. 11.

Another feature of the standardization program is found in the transmission equipment. All of the pulleys in the plant are of the split pressed steel type; all line shafting is 2 7/16-inch diameter; and all shaft hangers are of pressed steel and equipped with roller bearings. The line shafts are driven by chain drives which run in oil-tight castings. The arrangement of the motor drive is shown in Fig. 8.

### *Assembling Machine Tools*

After a piece of stock has been machined, it passes across the front main aisle to the finished stock rooms in the assembling department. Provision has been made for the convenient storage of the various parts of a machine tool so that the assemblers can erect it with the least amount of unnecessary effort. The individual drills made by the Foote-Burt Co. are assembled in one part of the department while other divisions, each devoted to other products as bolt cutters, multiple way drills and special machinery, occupy the remaining portion of the assembling department. The heaviest machines are assembled in the section nearest the shipping room.

The semifinished material is frequently inspected in the various stages of completion. The headquarters of the inspectors adjoins the hardening room in the northwest corner of the building, as shown in Fig. 3. Inspection of many parts takes place before and after they have been heat treated.

After a machine has been assembled it is taken to the shipping room by means of the 10-ton monorail system shown in Fig. 10. It will be noted from the ground plan shown in Fig. 3 that the monorail tracks extend part way into each bay of the assembly department where the monorail hoists can reach the finished machines which are handled by the traveling cranes during the assembling process. In cases where it is desirable to handle machines weighing more than 10 tons, both monorail hoists are brought into play and the lifting capacity is increased to 15 tons by suspending an equalizer from the two crane hooks and attaching a load to a hook swung from the center of the equalizer. The monorail crane can carry the finished machine out of the building to the railroad track, south through the shipping room to a 10-ton crane, or to the north of the assembly room where it may be lowered upon an automobile truck. As in the receiving room, the shipping room is provided with a 15-ton platform scale. The shipping department also is equipped with facilities for crating machines.

Among the auxiliary shops and departments throughout the plant is the pattern storage and pattern maintenance section, situated just south of the rear main aisle. Here all of the patterns belonging to the company are stored while not in use at the foundries where the castings for the company are manufactured. The patterns are repaired here by Foote-Burt Co. employes and a carpenter shop for general work also is provided. The metal shelves which have been distributed throughout the plant for the convenience of workmen, were manufactured by the Lyon Metallic Mfg. Co., Aurora, Ill. Southeast of the pattern storage shop is a paint shop. However, in painting machine tools, only the parts which will be inaccessible on the finished machine are painted before assembling. The last coat is applied in the assembling department after the machine has been tested.

Several large bins have been installed near the railroad siding just outside of the shop for the storage of steel and iron chips removed during the machining operations. An experimental department also is maintained for research and experimental work. The hardening room is on the opposite side of the front main aisle along the west side of the building and is equipped with heat-treating furnaces and with pyrometers, quenching tanks, and other necessary apparatus.

### *Tool Room Centrally Located*

In order that the minimum amount of time may be lost in the trips made by the workmen to and from the tool room, the tool crib is situated near the center of the building. On the west side of the track just north of the heat treating room is the factory office, superintendent's office and dispensary.

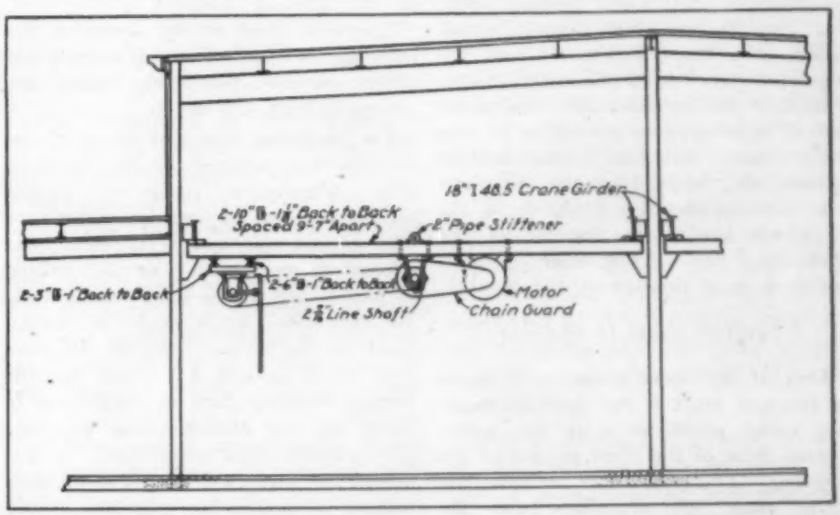



FIG. 8—A SECTION OF ONE OF THE BAYS IN THE MACHINING DEPARTMENT SHOWING CRANE GIRDERS AND STANDARD METHOD OF SUPPORTING DRIVING MOTOR, LINESHAFTS AND COUNTERSHAFTS. SINCE NO HOLES ARE DRILLED IN THE 10-INCH CHANNELS, THE SHAFT HANGERS AND MOTORS CAN BE ADJUSTED EASILY WITHOUT THE NECESSITY OF WEAKENING THE CHANNELS BY FREQUENT REDRILLING

The lighting and heating of the plant has been given considerable attention by the Foote-Burt Co. engineers. In the manufacturing departments, the fixtures for individual lamps are arranged in staggered formation 16 feet center to center. Standard enameled bowl lamps are used and the 300-watt lamps which are used give 1.35 watts per square foot or about 8.5 foot candles. In the high bays, the fixtures are elevated 21½ feet above the floor while in the low bays the distance is 12½ feet.

### *Heating the Building*

The heating of the building is accomplished by means of circulating hot water which is heated in two small tubular boilers situated in the boiler house at the east of the main building as heretofore noted. The cir-

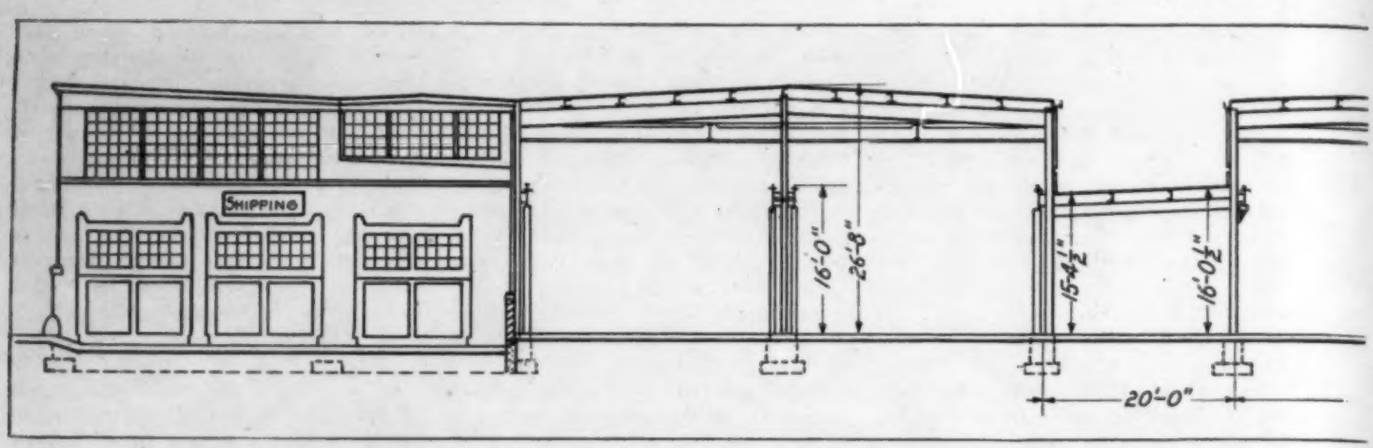



FIG. 9—A CROSS SECTION OF THE PLANT NEAR THE FRONT OF THE BUILDING SHOWING THE HEIGHT OF ROOF TRUSSES, SPAN OF CRANE RUNWAYS, ETC. NOTE PARTS OF THE PLANT. NOTE THAT THE 3-INCH WOOD BLOCK FLOOR IS LAID ON A 6-INCH BASE OF CONCRETE. HOT WATER DELIVERED TO RADIATORS SYSTEM FOR FIRE

culation of the water is governed by motor-driven centrifugal pumps, while the temperatures for the individual radiators in the offices and plants are regulated direct from the boiler house. The coal storage bins and the transformer housing also are parts of the boiler house structure. The heating system was installed by the American Fire Extinguisher Co., Providence, R. I., which also is the builder of the sprinkler fire extinguisher system which is used throughout the plant.

### *Drafting Room Is Spacious*

One of the most attractive features of the new plant is the spacious drafting room which occupies the entire second floor of the front section of the building. This room can accommodate more than 100 draftsmen and the lighting arrangement has been worked out so well that it is practically impossible to cast a shadow on any one of the drawing boards.

The first floor at the front of the building is devoted to the general offices, several views of which are shown in Figs. 4, 5 and 6.

The particular type and layout of the building was adopted by the company after considerable study of various plausible designs of machine tool plants. The present size and arrangement was selected to meet needs as they existed at present and at the same time provide for expansions which might be necessitated in the future. Should the company grow to such an extent that the present building becomes inadequate to house all the manufacturing processes the assembly department could be extended to cover the entire floor space making allowance for only one or two minor departments. In this event other accommodations would be built for the machine and miscellaneous departments.

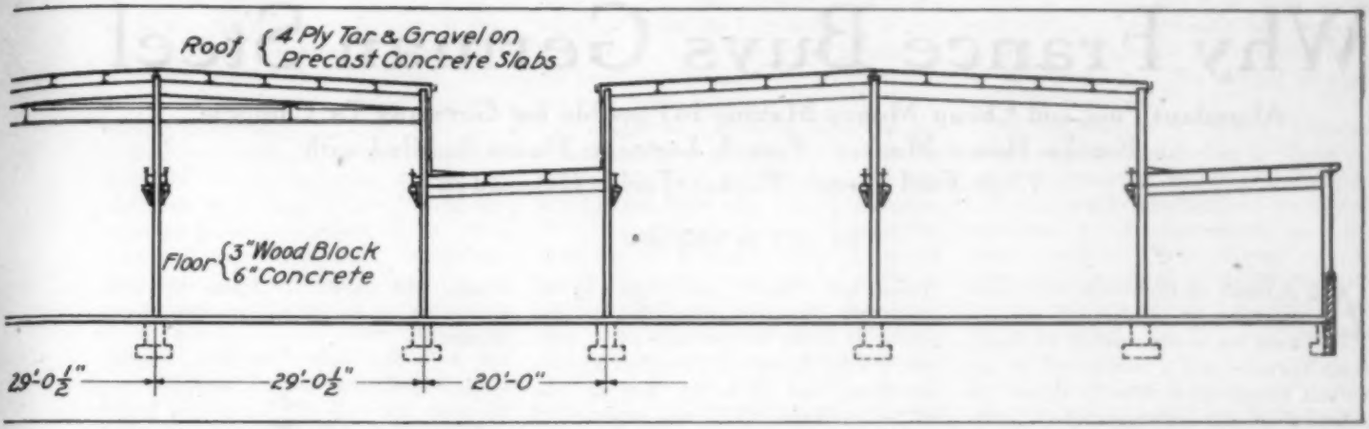
In a historical way it may be said the original organization of the Foote-Burt Co. took place in 1892. At that time A. W. Foote organized what was then known as Foote Burt & Co., with P. S. Burt as a partner. The company continued under this name until 1906, when the incorporation took place and the name as it stands today was chosen.

### *Personnel Changed in* 1919

A third change in the personnel was made July 30, 1919 and the men who were then given supervision of the company are directly responsible for the new building and other expansion programs. The company has endeavored throughout its existence to be pioneers in new machinery designs and improved methods.

The Foote-Burt Co. has an authorized capitalization of $1,500,000. The

FIG. 10—A VIEW FROM THE SHIPPING ROOM SHOWING THE FRONT MAIN AISLE. THE WOOD BLOCK FLOOR, 10-TON MONORAIL SYSTEM AND 15-TON PLATFORM SCALE ARE SHOWN. THE RADIATORS ON THE WALL AT THE RIGHT INDICATE THE METHOD OF HEATING EMPLOYED THROUGHOUT THE PLANT




THAT THE ARRANGEMENT OF WINDOW SASH IN THE UPPER SIDE WALLS OF THE HIGH BAYS AND IN THE EXTERIOR WALLS AFFORDS NATURAL LIGHTING FOR ALL ON THE FLOOR NEAR THE EXTERIOR WALLS PROVIDE NECESSARY HEAT IN WINTER. THE BUILDING IS EQUIPPED WITH AN AUTOMATIC SPRINKLER PROTECTION

present officers are: President, G. E. Randles; vice president, T. H. Doan Jr.; secretary, W. S. Quinlan; treasurer, S. E. Gross. The new plant which is a consolidation of the four formerly operated by this company, began operation in November, 1920. F. A. Barnes, chief engineer, supervised the plant layout.

## Finds Manganese Almost Free of Silica

Manganese deposits in Madison county, Mont., relatively small, but yielding ore that is almost free of silica and therefore very desirable for making ferroalloys are described in a paper by J. T. Pardee, recently published by the United States geological survey, department of the interior. The deposits lie along the west side of Madison valley, near Cherry and Wigwam creeks and in the foothills east of Jefferson valley near Renova, respectively, 70 and 30 miles southeast of Butte.

The managnese in the deposits is primarily of sedimentary origin, and therefore the deposits are different from most of the others in this general region, which are related to metalliferous quartz veins. In August, 1917, the deposits on Wigwam creek were being mined by W. L. Morrison, and the ore was hauled 30 miles by motor truck to Norris, the end of a branch line of the Northern Pacific railroad. Those near Cherry creek were idle in 1917, but had been worked intermittently during the previous year. No ore has been mined recently from the deposits near Renova, but formerly iron ore was sent to smelters at Butte and used as a flux. On Wigwam and Cherry creeks irregular, lenslike bodies of manganese oxides, chiefly psilomelane and subordinately manganite and wad, are found in an ancient marbleized limestone that underlies the Cambrian Flathead quartzite. The principal impurities are calcium carbonate and oxides of iron. The limestone is brownish red and pink because of small amounts of iron and manganese oxides distributed through it. The ore is thought to have been formed in the Tertiary period by the weathering of this discolored limestone, the manganese and iron being in part dissolved and redeposited in open places.

Prior to August, 1917, about 100 tons of ore containing from 40 to 50 per cent of manganese had been produced, and a considerable amount of low-grade material remained on the dumps.

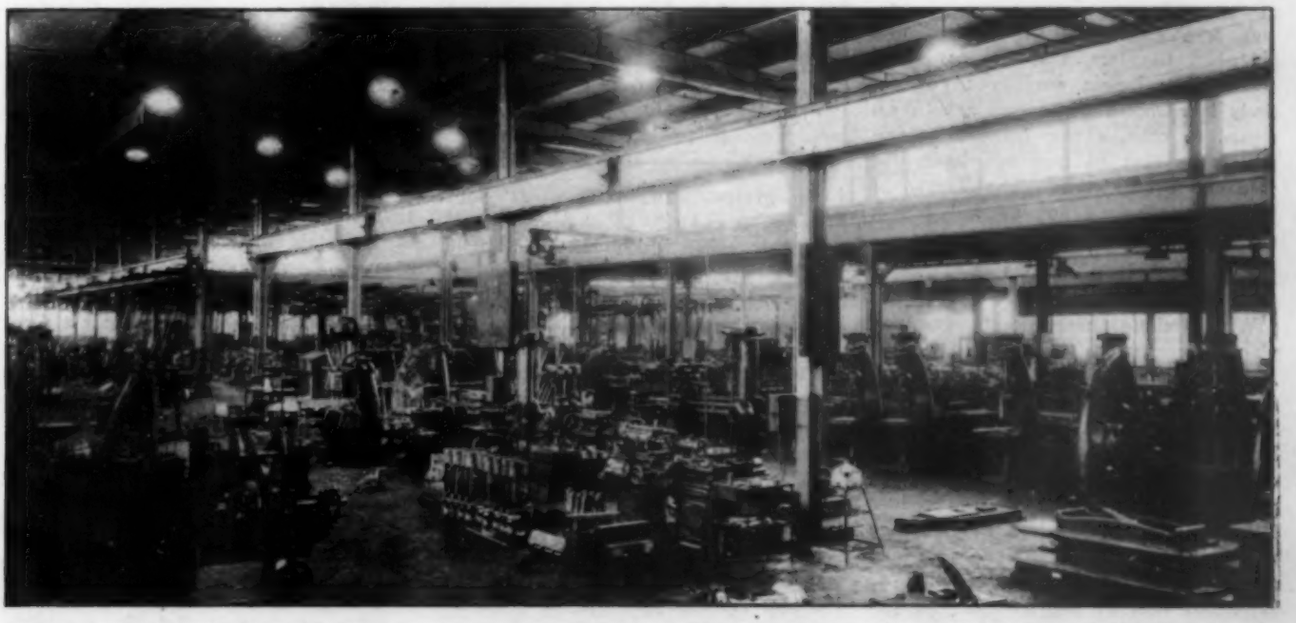


FIG. 11—A VIEW OF THE ASSEMBLY DEPARTMENT SHOWING THE FACILITIES FOR QUICKLY ERECTING MACHINES FROM THE FINISHED PARTS BROUGHT FROM THE OTHER DEPARTMENTS. CRANES FACILITATE THE HANDLING OF HEAVY MATERIAL IN THIS DEPARTMENT

# Why France Buys German Steel

## Abundant Fuel and Cheap Money Making It Possible for Germany To Compete in French Home Market—French Lorraine Plants Saddled with High Fuel Costs—Higher Tariff Demanded

BY GUY de WENDEL

AS A result of the return of Alsace-Lorraine to France it devolves upon me in my capacity of deputy from Lorraine and a member of an important metallurgical firm to expose the situation of this industry which above all others has felt the widespread repercussions of today.

In the various reports which have been made since the armistice it has been recognized that the annual capacity of the French iron and steel industry, based on the statistics of before the war has increased from 5,200,000 tons to 11,000,000 tons of pig iron and from 4,800,000 tons to 10,400,000 tons for steel.

Our industry, then, may be said to be side by side with that of England. Many have thought it is already in a situation where it might conquer the European export market. The importance of present productive capacity considerably exceeds home consumption possibly to the extent of from 4,000,000 to 5,000,000 tons per annum, all of which should be available for export.

It was thought also that our iron ores were sufficient to hold in check the German industry which hitherto had prevented so considerable a development of our own industry. This was the view held by many in the industry and an opinion which has been somewhat exaggerated by the press and a notable part of the public.

A few, less optimistic, realized and published the fact, that France lacked coal in a sufficient quantity to be entirely independent of foreign aid. With regard to coke, a raw material as important as that of iron ore itself, the case was even clearer. The Treaty of Versailles gave us our mineral but it neglected the matter of combustibles.

### *An Eden Without Fuel*

When these magnificent Lorraine plants were under German sway they were readily and economically provisioned in combustibles from across the Rhine. These plants have been ceded to France but their coal supply has been cut off as a consequence. Actually these plants which can be made to produce 10,000,000 tons of pig iron a year, have a deficit of 22,000,000 tons of combustibles. Germany with a production of 11,000,000 tons of pig iron has an excess of 32,000,000 tons of coal.

Following the Spa agreement in August last, French metallurgy was automatically endowed with fuel to the extent of nearly 60 per cent of its current needs. It seemed then that French metallurgy was in a fair way to take on the extension which was expected of it, and above all to play the part of conqueror in the export markets.

This hope was but short lived for at the same moment there appeared the first symptoms of the crisis which has come to accentuate itself today. The result has been virtually to stop all interior demands which up to this time have presented themselves as most pressing.

### By An Authority

*THE accompanying article on the presentday position of the French iron and steel industry was first delivered as a speech in the Chamber of Deputies in Paris. The author, Monsieur Guy de Wendel, is one of the foremost iron and steel masters in Europe. He is a member of the old firm of Les Petits Fils de F. de Wendel, owner and operator of large works, mines, etc., in Lorraine and the east of France. As a presentation of the French point of view, particularly with reference to the competition of German iron and steel producers, M. de Wendel's contribution is of unusual value. Therefore it has been specially translated by the European organization of* THE IRON TRADE REVIEW *from the original text in the "Journal Officiel."*

In this crisis which has come upon us the French iron and steel industry has seen itself shorn of its obvious market by foreign competition, and this even with respect to orders from within the country which we had every reason to suppose would be ours by the very nature of things. Not only this but French producers find themselves unable to make much headway in foreign markets, the prime cause being the shortage and the high price of fuel.

French works are paying 200 francs a metric ton for coal (net with rebate), England 115 francs, Germany 47 francs, and Belgium 90 francs. The figures for metallurgical coke are respectively, 175 francs, 180 francs, 65 francs and 145 francs, based on the ruling rates of exchange.

### *Why French Costs Are High*

Since about 1400 kilograms of coke are necessary for the production of a ton of pig iron, the cost in France is over 42 francs a ton in excess of what it may be produced for in Belgium and 154 francs a ton above the cost in Germany. Standard beams, per ton, account for the consumption of 2000 kilograms of coke and 5000 kilograms of coal, and these costs in France are 110 francs a ton over Belgian costs and 300 francs a ton above those of Germany.

Heavy plates of open-hearth steel, produced by the consumption of 3 tons of coal, cost in France 300 francs more than in Belgium and 460 francs more than in Germany. As a matter of record it may be stated that steel plates manufactured in France have the benefit of a customs protection of only 70 francs the ton.

Labor costs may be put down in France as 20 francs per day per man, on the average, whereas in Germany, at the ruling value of the mark as compared with the franc of these times, these figures are from eight to nine francs only.

Transportation costs in Germany, when expressed in francs, are extremely low as compared with those of France. The fact that these transportation costs in Germany leave a large deficit which has to be liquidated by the nation is only another way of saying that German metallurgy is thus largely subventioned, whereas that of France is not, in any sense whatever.

I do not fear to make the statement that at the present hour it is extremely difficult for us to struggle against German competition even within our frontiers. Even by procuring semifinished or raw materials abroad, our transforming industries are incapable of struggling against those of Germany and it is by no means rare to see offers at prices 50 per cent and even 70 per cent below those at which our own manufacturers can supply the market. Many French plants have slowed down their production these last few weeks; some even have stopped work entirely. Finished products are accumulating rapidly in

yards and warehouses, all of which is extremely hazardous to business in case the individual treasuries of these plants will not enable them to carry these stocks while awaiting more favorable market conditions.

Even reductions in the prices of combustibles will of itself not wholly save the situation so long as the French customs tariff is not revised by the addition of higher coefficients. Above all does this have a bearing upon imports from Germany where the exchange rate is so inferior to our own. When the present coefficients were added to our customs tariff in July, 1919, the need of them was great; it is even more so today. It is not possible, given the instability of financial and economic affairs as they exist at the present moment, to revise the French tariff in general, but it is possible by a revision of the coefficient to meet the most urgent needs of home industry.

It should be mentioned, also that the Versailles treaty provides for free trade between Germany and the Saar and also between the Saar and France, including of course Alsace-Lorraine, in quantities equal to those which freely circulated before the war. This has led to unexpected sources of fraud. German products, camouflaged as of Saar manufacture, are able to take on false certificates of origin and get into France free of duty. The old frontier iron and steel industries are more favorably situated to continue the struggle than those in the center of France, and it is to be feared that the latter continually will be producing under greater and greater costs as time goes on. The danger can already be measured.

The magnificent plants in Lorraine which have become French by their acquisition from the enemy property custodian have only been acquired by French capitalists by the assumption of very heavy charges. Under German regime they were capitalized at 500,000,000 gold marks for their bonds and 300,000,000 for their stock. By the existing state of affairs, these plants were bound to be taken over by French owners who are also in duty bound to operate them as long as conditions make such operation possible.

# Waste Heat Boilers Abate Power Losses

BY THOMAS R. TATE

SO MANY numerous installations of waste heat boilers have been made in this country on open-hearth furnaces since the experimental plant constructed at the South Chicago plant of the Illinois Steel Co. in 1910, and many tests have been performed and records kept of the daily operation of these installations, that the modern waste heat boiler and theory covering its design have been worked out to such a stage as to insure the ultimate success of almost any installation.

Nearly all of the large steel companies have one or more waste heat boilers in service on their open-hearth furnaces today. Some of these are experimental plants and have not given as satisfactory service as an installation made today with the present data available on this subject, would justify. Most of the difficulties have been due to insufficient, or too much draft, lack of proper draft control, improper location of boiler with respect to stack and induced draft fan, and to the presence of numerous air leaks through the checker-work in the waste heat flues and in the boiler setting. All of these troubles can be overcome in new installations, but it is somewhat difficult to obtain the most satisfactory arrangement when a waste heat boiler is added to an existing plant.

The present installations comprise boilers of the fire tube type, horizontal water tube boilers and vertical water tube bodies. Each type has its respective advantages and disadvantages as is the case with standard coal fired practice. In many cases the first cost of the installation and the maintenance charges determine the decision as to which type shall be employed; and the question of efficiency and per cent of rating developed is not always given the careful study it deserves. The results obtained from numerous tests lead to the following conclusions and theories with regard to the waste heat boiler, as applied to the open-hearth furnace.

*Determining the Proper Size*

The design of the proper size and type boiler for any installation should be determined upon the basis of the weight of waste heat gases from any given size furnace and the tonnage rating of the furnace. This weight can be calculated from the amount of carbon content in the fuel and in the charge per ton of ingot steel produced and from analyses of the gases and their atomic weights. The averages of several tests with producer gas show values of $CO_2$ of from 12 to 16 per cent and of CO from zero to 0.6 per cent.

The draft on the furnace generally varies from 1.3 to 1.5 inches of water. The draft loss through the waste heat flues depends to a great extent upon the length of the flues, number of bends, etc., but for average conditions and a gas velocity of 25 feet per second, 0.1 inch of water should suffice. The draft loss through the boiler varies from 1½ to 3 inches of water, depending upon the type of boiler and the area of the gas passage and accumulation of dust on heating surface. The induced draft fan should always be of sufficient capacity to handle the volume of gases passing through it and furnish the desired draft. The method of driving the fan will be discussed later. The temperature of the gases entering the boiler ranges from as low as 900 degrees Fahr. in some instaliations to a maximum of 1400 degrees Fahr. and varies considerably during a given heat. With a properly designed flue, and the boiler located within 20 to 30 feet of the checkers, an average temperature of 1200 degrees Fahr. should be obtained at entrance to the boiler.

Due to the fact that most of the heat transfer from the gases through metal heating surface to water comes from the principle of convection of heat and little transfer is gained from radiation, close attention must be paid to the principles promoting the efficiency of convection. These principles are general and basic and may be stated as follows:

Close confinement of the gases to the heating surface, long gas travel; ample time for the gases to be in contact with the heating surface; gravity or mechanical cleaning of heating surfaces to insure greatest efficiency, and no possibility for the gases to short circuit the heating surfaces, regardless of velocity.

The location of the boiler should be adjacent to the stack, on center line of the furnace. The fuel used may affect the arrangement slightly as it may eliminate part of the checker-work and vary the location of the waste heat flues. The latter should be designed to come directly from the checker-work to the boiler, with a by-

Abstract of a paper presented at a recent meeting of the Association of Iron and Steel Electrical Engineers, Philadelphia. The author, Thomas R. Tate, is an engineer associated with Perin & Marshall, New York.

pass around the boiler and fan and suitable by-pass valve. If underground, these should be protected against heat losses and air leaks by from 3 to 4 feet of earth. If overhead, they should consist of a steel pipe with a suitable firebrick lining.

Induced draft is absolutely essential to the success of any scheme of open-hearth waste heat utilization. The fan, preferably of the steel plate overhung type, should be so located as to obtain ample draft at all times to move the gases generated through the boiler and minimize the length of passage from outlet to stack. The fan drive should be determined from the standpoint of draft control and feed water heating. Variable speed motors, constant speed squirrel cage induction motors, steam turbine drive or steam engine drive may be used with satisfaction. With variable speed motors, the speed and draft may be controlled from the melting platform. With constant speed motors it is necessary to use a damper, also controlled from the melting platform. With either a steam turbine or a steam engine, the speed and draft may be varied directly at the fan. The steam turbine affords the most flexible method of drive and of course gives ample exhaust steam for feed water heating.

*Soot Blowers Are Essential*

Superheaters are a necessary adjunct of any power house and should be omitted in any waste heat boiler installation. Their location should be such as to furnish the desired amount of superheat. The square feet of heating surface required for superheaters is approximately 10 per cent of the total square feet of boiler heating surface.

Soot blowers are absolutely essential for the successful operation of any waste heat boiler containing a large amount of dust in the waste heat gases and should be installed regardless of the type of boiler selected. If the heating surfaces are not kept clean the average efficiency and percentage of normal rating obtained will rapidly fall, hence the installation of soot blowers as a prime requisite. It is also advisable to have feed water regulators but the type selected should be unaffected by temperature changes as conditions often necessitate locating the waste heat boiler some place outside the plant.

There has been evolved from the tests made upon waste heat boilers a simple method for determining the horsepower which can be developed and the proper size boiler to be installed for the development of that horsepower, which is as follows:

$$\text{B.H.P.} = \frac{W \times C \times (T_1 - T_2) \times E}{U \times L}$$

In which:
B.H.P. = Boiler horsepower.
W = Pounds of gas available per hour.
C = Specific heat of the gases.
$T_1$ = Initial temperature of the gases entering the boiler.
$T_2$ = Temperature of the gases leaving the boiler.
E = Constant used to cover unaccountable losses, variation in dust accumulation on heating surface, etc.
U = Pounds of water evaporated from and at 212 degrees Fahr. per hour per boiler horsepower.
L = Latent boiler vaporization from and at 212 degrees Fahr.

The coefficient E appears from test results to have a value of between 85 and 90 per cent.

As an approximation W may be assumed on the basis of 1000 pounds of gas per ton of output if operating on producer gas.

The specific heat C may be taken as 0.24 to 0.27 for most calculations.

The heating surface required in the boiler to develop the horsepower obtained by the foregoing formula may be obtained by the following formula:

$$S = \frac{W \times C \times (T_1 - T_2)}{R \times \left( \frac{T_1 + T_2}{2} - \frac{t_1 + t_2}{2} \right)}$$

In which:
W, C, $T_1$, $T_2$ are the same as above.
R = Rate of heat transfer = British thermal units per square foot of heating surface per degree temperature difference per hour.
$t_1$ = Temperature of steam due to pressure.
$t_2$ = Temperature of feed water.
S = Square feet of heating surface.

The rate of heat transfer can be calculated or interpolated from a curve published by Babcock and Wilcox Co., in its book entitled, "Experiments on the Rate of Heat Transfer from a Hot Gas as to a Cooler Metallic Surface," provided the gas passage area of the boiler is known in terms of weight of gases per square foot of flue area per hour. In open-hearth waste heat boilers of the horizontal water tube type, this gas area is restricted to approximately 3500 pounds per square foot of gas passage area per hour, and a high gas velocity thereby obtained. The foregoing formulas are approximate only but may be used for rough calculations to determine the proper size of boiler. The rate of heat transfer R varies considerably, however, with the gas velocity.

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The Radium Information Service, New York, has recently made known uses for radium in industrial plants which tend to reduce the number of accidents. A luminous material of which the principal constituent is radium has been developed, which when applied to darkened parts of equipment aids operators in the correct manipulation of the machinery. Some of the uses cited are application on high pressure gages, electric switches, fire alarms, telephones, combination dials for safes, and bolt heads.

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## Distribute New Iron and Steel Shape Book

A 434-page shape book now is being distributed by the Republic Iron & Steel Co., Youngstown, O., which contains specifications and profiles of all sections rolled by that company from open-hearth and bessemer steel, iron and old rail stock. Seven pages are devoted to descriptions of the company's holdings including its Pioneer blast furnaces at Birmingham; its Northern blast furnaces at Youngstown, O., New Castle and Sharon, Pa.; its by-product coke ovens, open-hearth and bessemer plants and rolling mills at Youngstown, O.

Specifications as adopted by the American Society for Testing Materials and the Association of American Steel Manufacturers covering structural and boiler steel, concrete reinforcing bars and the standard allowable variations in size and weight of hot rolled bars and the standard methods of sampling for check analysis, are presented in the following 16 pages. Standard classification of extras on steel plates, standard structural shapes, steel bars and shapes, and steel bands are given in full. This is followed by several pages of profiles of sections which include the dimensions and weight of each.

Nominal weights and dimensions of various grades of wrought steel pipe together with specifications for standard welded pipe are included in the 57 following pages. Various tables are given in the chapter dealing with sheet mill products such as the table of standard sizes showing the weights of square feet, sheets and bundles of black and galvanized stock and the number of sheets in one bundle, the table for computing the length of curved sheets, etc. Directions for ordering bolts, nuts and washers together with the manufacturers' standard list of extras next are presented in detail.

The next chapter deals with the various sections rolled from old rails at the company's Sylvan works located at Moline, Ill. and is followed by profiles and tables relating to the various sections rolled in iron at the company's Inland works located at East Chicago, Ind. Miscellaneous tables of weight are presented in the last 53 pages. A list of rolled shapes is indexed numerically in addition to a descriptive index covering 13 pages.

# American Malleable Cast Iron

## A Series of Related Articles Dealing with the Development of the Industry, Modern Methods of Manufacture, Metallurgical Principles Involved and the Properties of American Malleable Iron

BY H. A. SCHWARTZ

## Chapter III—Metallography of Malleable Iron

ALL of the ferrous materials used commercially may be considered as alloys of iron and carbon. Their properties are determined primarily by the character of the individual alloys present. The possible entities or materials present in commercial iron and steel are as follows:

*Ferrite*—Carbon free iron.

*Cementite*—Iron carbide having the formula $Fe_3C$.

*Austenite*—A solid solution of iron carbide in iron homogeneous in character and of indefinite carbon content.

*Pearlite*—A mechanical mixture composed of alternate layers of cementite and ferrite in such a proportion as to contain 0.89 per cent carbon.

*Martensite, troostite, sorbite,* etc—Various intermediate products between *austenite* and *pearlite.*

*Graphite*—Free carbon in flat crystalline plates.

*Temper carbon*—Free carbon in an amorphous condition.

The common irons of commerce are all composed of various combinations of these ingredients, thus:

*Wrought iron* is nearly pure ferrite.

*Cast and annealed steel* is ferrite and pearlite.

*Tool steel* (0.90 per cent carbon) when annealed is practically pure pearlite.

Steels which have been hardened and tempered are martensite, troostite or sorbite with or without the presence of excess ferrite.

*White cast iron* is pearlite and cementite, as are also the very high carbon tool steels (over 0.90 per cent carbon) when annealed.

*Gray cast iron* is pearlite and graphite, usually containing also more or less ferrite and sometimes cementite, depending on the combined carbon content.

*Malleable cast iron* is ferrite and temper carbon.

It will be noted that the latter product differs from all the others in containing free carbon and free iron only. Further it is the only material containing temper carbon and the only cast material containing ferrite and no pearlite or other form of combined carbon.

It owes its properties to this combination of materials and in turn it owes its metallographic composition to the peculiar circumstances under which it is produced. In this case, as in all others, the particular metallographic entities present are determined by the chemical composition and heat treatment of the alloy.

The particular substances which are stable at different temperatures and concentrations of carbon were first systematically recorded by Roberts-Austin. The Roberts-Austin diagram has since been modified in accord with later and more accurate quantitative observations, and in the light of new knowledge by many contributors.

It can be shown that there are two typically distinct series of alloys. In one cementite and iron are the components present, either free or in solution in each other, while in the second

FIG. 1—UNANNEALED HARD IRON. THE STRUCTURE IS ALWAYS DENDRITIC BUT VARIES SLIGHTLY WITH CARBON CONTENT

White is cementite; gray is pearlite. Etched with picric acid X 100

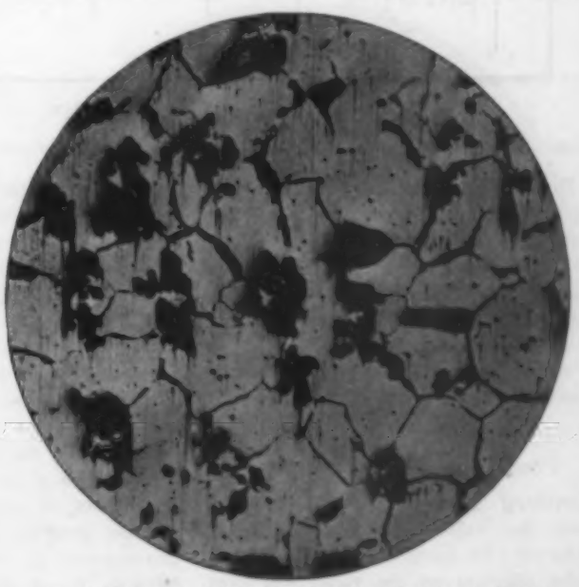


FIG. 2—GRAPHITE CRYSTALS IN MALLEABLE MADE FROM HARD IRON CONTAINING GRAPHITE

Black grains represent temper carbon; heavy black lines, graphite; thin black lines, grain boundaries; white, ferrite. Etched with alcoholic nitric acid X 100

free carbon enters to more or less replace the carbon of the cementite.

It has been clearly shown that molten cast iron or steel is a solution of cementite, $Fe_3C$, in iron, $Fe$. Volumes have been written to prove or to disprove the thesis that all graphite is derived from the decomposition of solid, or frozen cementite. However this may be, temper carbon is always a decomposition product of previously formed cementite, since the casting before anneal consists only of cementite and pearlite.

In this case, at least, we may base our conclusions on the diagram as outlined by Benedicks in the form of a double diagram. Fig. 3 sums up Benedicks' views with sufficient accuracy for the present purpose. The exact location of some of the lines has in some cases been questioned on the basis of accuracy of observation. The solid lines of the figure indicate the equilibium conditions in the metastable system $Fe_3C$—Fe.

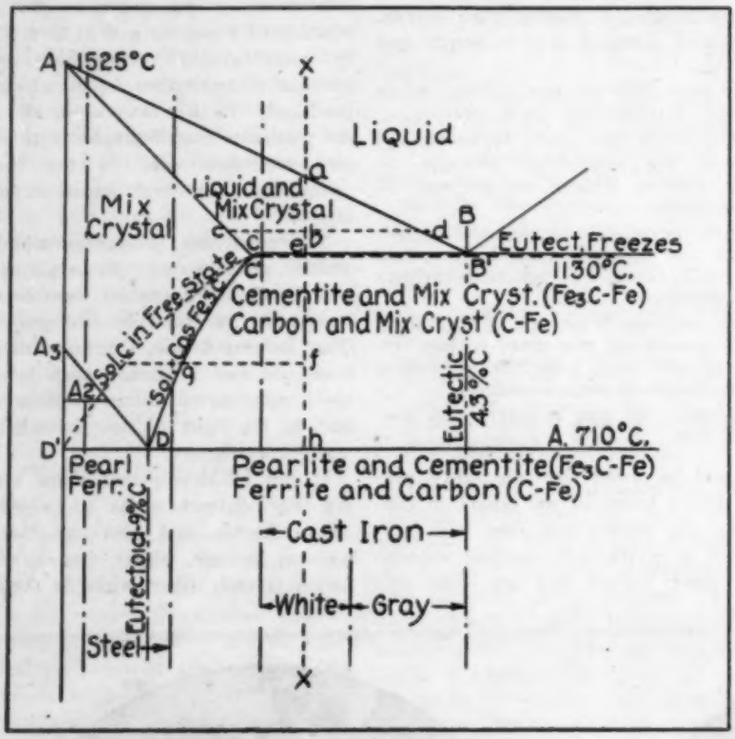



FIG. 3—BENEDICKS' DIAGRAM

*Freezing of White Cast Iron*

Confining attention to that area between the values carbon = 200 and carbon = 3.00, marked at the lower part of the diagram as the range for commercial white cast iron, it is found that molten iron begins to freeze when it reaches the temperature corresponding to the intersection of the line *A B* with the vertical line corresponding to its carbon content. Thus for a carbon content of 2.50 per cent indicated by the line *x-x* on the diagram, the freezing point is at *a*. The material is lower in carbon than the liquid material remaining, thus at a temperature *b* the alloy *x-x* has a solid phase of the carbon content *c* and a liquid of the carbon content *d*. At the temperature *e*, constant for all alloys of more than 2 per cent total carbon, the remaining liquid or eutectic freezes as an alloy containing 4.3 per cent carbon. The solid formed just before the eutectic freezes, contains about 2 per cent of the combined carbon. In freezing, the eutectic breaks up into cementite and an austenite containing 2 per cent combined carbon identical with the solid portion formed just before the freezing of the eutectic.

As the temperature decreases further, austenite is saturated with less than 2 per cent combined carbon, the solubility decreasing with the temperature as shown by the line *C D*. Thus when the alloy *x-x* is at the temperature *f* it consists of cementite and a decomposition product of austenite of a carbon content *g*. When the temperature falls to $Ac_1$ at the point *h* the solubility in *Fe* becomes nil and the remaining solid solution is converted into pearlite. This is the actual course of events during the freezing of the ordinary white cast iron of the malleable industry.

The system has been described as metastable, in other words, it is permanent as regards its components, not because actual final equilibrium has been attained but because further rearrangement is impossible under the temperature conditions obtaining. If the iron be maintained sufficiently long at high temperature, either in cooling or by reheating, the cementite directly or indirectly will be converted into free carbon.

This reaction is due to the fact that at a given temperature carbon is less soluble when not combined with iron than in the form $Fe_3C$. The equilibrium conditions in the stabile system, $Fe_3C$, are below the eutectic freezing point approximately shown by the dotted line *B C D*, although there is room for argument as to its intersection with the 710 degree line. If the alloy marked *x-x* be maintained at *f* a very long line time, free carbon will precipitate and cementite dissolve until none of the latter remains and the system consists of free carbon and an alloy having a combined carbon content *i*. If now cooling be very slow the carbon can be progressively precipitated with decreasing temperature until at, or about, $Ac_1$, no combined carbon will remain. Archer maintains the solubility at $A_1$ to be about 0.7 per cent carbon and graphitization to be complete below that point only.

*Graphite and Temper Carbon*

Graphite and temper carbon are chemically identical and differ only in geometric form. Which one is formed depends only upon the temperature at which graphitization occurs. If carbon forms at a temperature near the eutectic freezing point, hence in a nearly liquid medium, it can spread out into crystalline flakes of graphite. If it is formed in nearly solid iron at relatively low temperature it remains in the amorphous temper form.

The function of malleable metallurgy is to produce a graphite free casting and then graphitize this at temperatures such that temper carbon results.

To this end the foundry must produce a white cast iron of such a composition as to be readily graphitized. The tendency to graphitization both during cooling and in annealing is affected greatly by the chemical composition of the product. Thus silicon and some of the rarer elements, notably aluminum, promote the formation of the stable system while sulphur, manganese, and some rarer metals largely retard the formation of the stable system.

It can be seen that the properties of malleable iron depend largely on the total carbon present, because the more

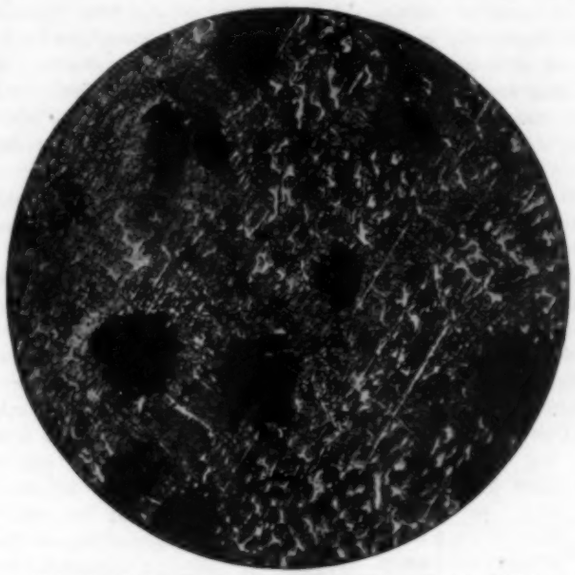


FIG. 4—BEGINNING OF GRAPHITIZATION AFTER 3½ HOURS AT 1700 DEGREES FAHR.

Black represents temper carbon; white, cementite; gray, martensitic to sorbitic mixed crystals. Etched with picric acid X 100

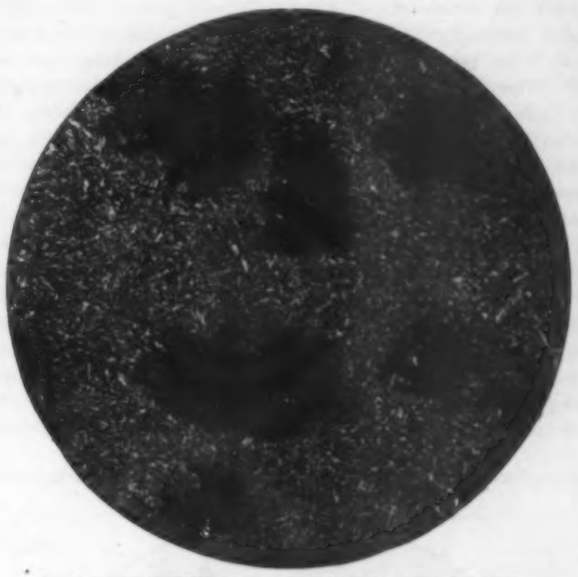


FIG. 5—EQUILIBRIUM AT 1700 DEGREES AFTER 70 HOURS

Black represents temper carbon; gray and white, martensitic mixed crystals. Etched with picric acid X 100

carbon is present the more will the ferrite matrix, of which the product is mainly composed, be interrupted by that element. Since carbon possesses no strength, every temper carbon granule decreases by that much the strength of the product.

In the early days much malleable was made high in carbon, owing to the advantage of a lower melting point with correspondingly greater fluidity. At times the carbon was so high, as compared with the silicon, that some graphite formed in freezing, making a bad matter worse for obviously a thin flake of carbon will do more damage than a spherical nodule of equal weight. From this practice resulted much of the "rotter" iron sold say 10 years ago.

*Use of Silicon*

Most of the malleable iron made by the better manufacturers today range from 2.30 to 2.70 per cent carbon before annealing. An average for a high grade product in castings of fair size would probably be between 2.40 and 2.50 per cent. Small work, especially where the highest strength is not needed still is often made of higher carbon content, even up to 3 per cent, although this is not good practice from the viewpoint of the best physical properties. Since the size of the casting affects the rate of cooling it also affects the tendency to graphitize on freezing and hence

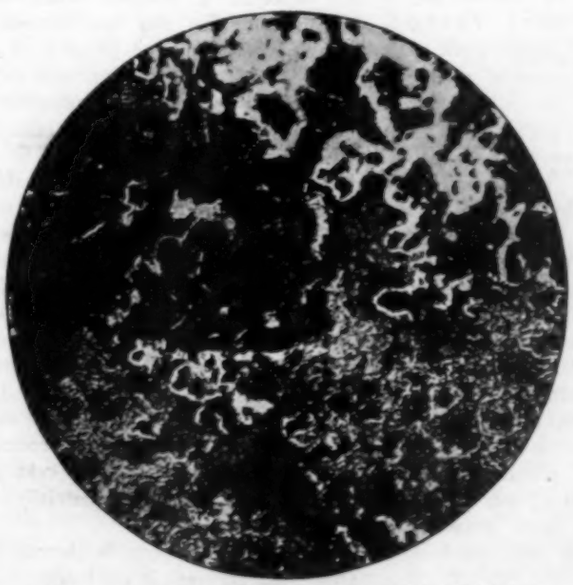


FIG. 6—IMPERFECT ATTAINMENT OF EQUILIBRIUM BELOW $A_1$ DUE TO TOO SHORT A TIME

Same as Fig. 5, followed by three hours at 1200 degrees Fahr. Black areas surrounded by white represent temper carbon; white, ferrite; gray, pearlite. Etched with picric acid X 100

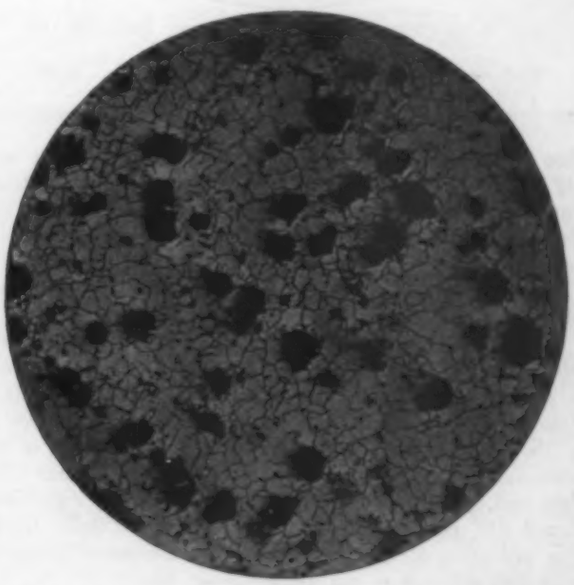


FIG. 7—NORMAL MALLEABLE IRON, METASTABLE EQUILIBRIUM BELOW $A_1$

Black represents temper carbon; white, ferrite. Etched with alcoholic nitric acid X 100

the chemical composition required to prevent this occurrence.

Quite generally this tendency is held in check by controlling the silicon content. When little or no silicon is present, graphitization in the annealing process is retarded to a commercially prohibitive degree. When too much is present graphitization may be so much promoted as to take place during freezing. Most classes of work have a silicon content of from 0.60 to 0.80 per cent.

It is general practice and sound metallurgy to vary the silicon inversely with the carbon and for a given carbon, inversely with the cross section of the castings. The purpose of this practice is to so select the silicon for a given carbon that the castings will be absolutely free from graphite.

FIG. 8—GRAPHITE CRYSTALS PRODUCED BY ANNEALING AT 2100 DEGREES FAHR.

Black represents graphite; white, pearlite. Unetched X 100

For rather low carbons, say between 2.10 and 2.40 per cent, it may be good practice to let the silicon vary at nearly the same rate. For instance, 2.40 carbon and 0.75 silicon metal has practically the same tendency to be graphitic in the casting or to mottle as 2.10 carbon and 1.05 per cent silicon. In higher ranges of carbon, say from 2.40 to 2.80 per cent the silicon may vary only three-fourths as fast as the carbon, 2.80 carbon and 0.45 silicon corresponding to 2.40 and 0.75 per cent silicon.

The reduction of silicon to values as low as 0.45 per cent is not usually good foundry practice because such iron is easily oxidized in melting and produces pin holes and similar difficulties due to the liberation of carbon monoxide while the metal is freezing. A casting which would prove large enough to require the carbon and silicon referred to above probably could not be successfully made with less than 0.55 or 0.60 per cent silicon, thus setting a limit for maximum carbon distinct from consideration of strength. The maintenance of proper relationship between carbon, silicon and size of casting is usually possible only on the basis of foundry experience and constant attention to results; consequently these matters cannot be briefly and adequately dealt with in any terms of general application. From the consumers' viewpoint, any attempt to embody them in specifications would be the height of folly, because the practice of no two plants, in matters of casting temperature, sand preparation, etc., would be nearly enough alike to make any one specification generally applicable even on a single class of work.

The problem would be further complicated by variations in the size of castings. The figures previously given may be understood to apply to fairly heavy castings and represent nearly minimum values of silicon for a given carbon. Light work may posibly run 0.20 to 0.30 silicon higher and unusually small work even beyond that. On such extremely light work the carbon also is occasionally well above 2.80 as previously explained, sometimes going over 3 per cent.

It is not necessary to lower the silicon for 3 per cent carbon far below that used at 2.80, partly because the tendency to mottle in very high carbon alloys is relatively little affected by the silicon. In alloys of this character the graphitizing tendency is dependent mainly on the cooling rate. They should never be used in metal sections of any thickness since their freedom from graphite is dependent primarily on their rapid cooling.

Sulphur and manganese have been referred to as opposing graphitization. These two elements unite to form manganese sulphide. This compound apparently has no effect on the formation of temper carbon. Accordingly, the absolute amounts of the two elements in the metal are unimportant provided they are in the proper proportion. It is found impracticable to follow the theoretical proportion of the two elements exactly, a slight excess in manganese always being necessary.

A very low sulphur is impossible of attainment except in electric furnace practice and can be had only by very close selections of fuel and melting stock. The low manganese required for low sulphur also presents difficulty on account of the manganese content of the available ores. The presence of a moderate amount of manganese sulphide does no harm and is sometimes a manufacturing advantage. The user need therefore have no fear of sulphur. The only harm this element can do is to prevent complete graphitization in the anneal. A physical specification for tensile properties will protect the consumer adequately in this point and leave the foundryman to operate his process to the best advantage with the fuel and stock available.

The value for sulphur .06 per cent maximum written into the 1904 specifications of the American Society for Testing Materials, and abandoned at its first revision in 1919 is particularly ill founded in view of the fact that very little malleable is made in the air furnace which does not contain about that amount before annealing. During the anneal there always is an increase in sulphur ranging from 0.005 to 0.03 per cent. It therefore is practically impossible to produce from commercial raw material a product which would continuously pass this specification. The highest grade annealed product of commerce has from 0.065 per cent to 0.10 per cent sulphur, thus indicating the unsoundness of the 0.06 per cent limit.

Electric furnace metal can be produced as low as 0.01 per cent sulphur before annealing. The application of the desulphurizing process is controlled by one producer through the Kranz patents. No particular advantage has been found to result from these very low values as compared with slightly higher amounts.

Phosphorus also has been regarded with more fear than is warranted. In small amounts it has no effect on the product; for example, iron containing 0.05 and iron with 0.15 per cent phosphorus would have commercially identical properties.

When this element is increased to about 0.25 per cent it no longer is completely soluble in the ferrite of the finished product. It then has a direct effect on the properties of the metal. In this respect phosphorus differs from all the other common elements, in that its

effect is not due to its action on the graphitizing process.

The exact point where phosphorus begins to exert a harmful effect depends to some extent on the heat treatment employed. Commercial melting stock and pig iron grading are such that the commercial product contains from 0.15 to 0.20 per cent of the element, usually about 0.18 or 0.19 per cent, which is amply safe.

The microstructure of the unannealed product is practically independent of chemical composition, unless the latter be strikingly abnormal. The structure is always dendritic, consisting of hard white cementite and a darker ground mass of more or less well developed pearlite, as shown in Fig. 1. Of course, there are minor differences of structure as between different samples, lower carbon iron containing relatively less cementite and higher carbon more. The coarseness or fineness of crystalline structure is dependent upon the rate of freezing. The presence of free carbon in the graphitic form is indicative of improper chemical composition. A graphitic area of this description persisting in the annealed product is shown in Fig. 2.

### *Changes During Graphitization*

Turning now to the second metallurgical step in the process, let us consider the changes taking place during graphitization in the so-called annealing of castings.

This process has for its object, not the elimination of carbon as many appear to believe, but the conversion of a meta-stable alloy containing $Fe_3C$ and $Fe$ into the stable system, consisting only of $Fe$ and $C$. This reaction involves no changes of ultimate chemical composition. All of the elements remain unaltered in quantity, the carbon only being converted from the combined to the free state, according to the reaction, $Fe_3C = 3FeC$.

That a certain amount of carbon is oxidized is a mere incident in the process. The elimination of carbon is of practical significance but is not in any sense the purpose for which the annealing operation is conducted. In this theoretical discussion of the principles of malleable iron metallurgy this decarburization will be disregarded and only the essential, graphitizing reaction will be considered.

In the early part of this chapter the conversion of the metastable into the stable system was touched upon and the mechanism of the change described. The equilibrium in the latter system is not as clearly understood as those of the former. This is due largely to the fact that steel and white cast iron furnish commercially important examples of this system in which equilibrium frequently is attained. Consequently there was material ready to hand and also a commercial necessity for the study of the system.

### *Commercial Application*

Malleable cast iron furnishes the only commercial application of material involving the attainment of equilibrium conditions in the stable systems. Because the output of malleable is small compared with that of steel and also because the product was not always known and understood, even by the more progressive engineers, the theoretical aspects of the problems of malleable metallurgy received inadequate attention and the studies made in the laboratories of some of the universities lacked the advantage of contact with the commercial aspects of the problem.

Significant work leading toward the establishment of a correct equilibrium diagram for the system *Fe-C* was done by Storey at the University of Wisconsin, Archer and White at Michigan and Merica at the United States bureau of standards. Howe also gave adequate attention to the mechanism of graphitization in his "Metallurgy and Metallography of Cast Iron and Steel."

It has been pointed out a number of times in this article that the conversion of cementite into free carbon results purely from the fact that the solubility of carbon in the stable system is less than in the metastable. That is, solid iron will dissolve less free carbon than carbon in the form of iron carbide.

When a white cast iron maintained at a temperature higher than the lower critical point, $Ac_1$, (1350 degrees Fahr.) free carbon is slowly formed and combined carbon is reduced a corresponding degree. The rate at which this change takes place, while depending upon the chemical composition of the metal, is greater the higher the temperature. However, for each temperature there is a definite value of combined carbon practically independent of the chemical composition, when the reaction ceases completely. These values of combined carbon, measuring the solubility of carbon as distinguished from iron carbide in solid iron, have for their locus the line *C'D'* in Fig. 3.

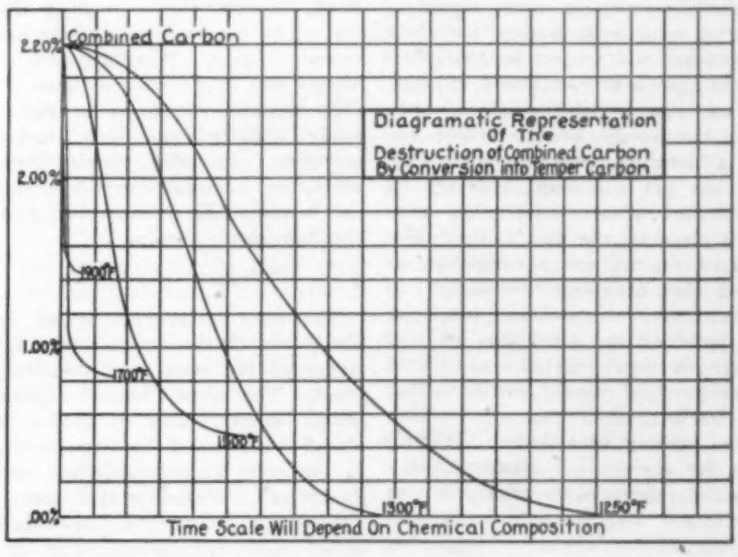



FIG. 9—CHART SHOWING CONVERSION OF COMBINED CARBON INTO TEMPER CARBON

The graphs show the relation between the carbon remaining combined and the lapse of time at each of five temperatures. Note the increasing velocity and higher carbon content of the conclusion at high temperatures as compared with low

### *Microstructure of Malleable*

When white cast iron is raised to a temperature well above the $Ac_1$ point, say 1700 degrees Fahr., a decrease in cementite and an increase in the gray background is observed. This results from the greater solubility of cementite at the higher temperature. Fig. 1 shows the structure of a normal piece of hard iron as cooled in the mold.

As the heating at 1700 degrees is continued, temper carbon begins to form at the expense of cementite, as shown in Fig. 4, and finally equilibrium is attained by the destruction of all cementite. The structure then consists of temper carbon and solid solution of

(*Concluded on page* 361)

Homes built for workers of Carnegie Steel Co., at Wilson, Pa.

# Housing Reflects Carnegie Ideals

## Ironmaster's Early Recognition of the Family Unit as Important Factor in Industry Formed Basis of Home-Ownership Plan Now Offered Employes of Company—How Family and Community Interest Is Fostered

BY C. L. WOOLDRIDGE

IN THE beginning, most manufacturers who built houses for their workmen did so not because they felt that such a project would increase their earnings or the employes' efficiency, but solely because there existed a housing shortage and they could not get the help necessary to operate their plants unless they provided a place for the men to live. For the same reason, many companies in isolated districts were compelled to operate stores where the employes could purchase the necessities of life. It was not then generally considered that an average, normal workman had other instincts than that of working and the making of a home. His instincts for social life, recreation, education and religion were usually left to develop and find expression without any thought or attention from his employer.

At about this same period some employers began to improve the working conditions in their plants. They found it was easier to get men and hold them if their plants were clean and light, had decent sanitary conditions, and were made as safe as possible. As this evolution in the working conditions of the plant took place, it was found that not only the turnover was less expensive, but the employes' efficiency was actually increased, so that today every modern plant has its department of safety, sanitation and welfare, which probably has found its most advanced expression in the plants of the United States Steel Corp.

Do not misunderstand me, in thinking that I in any degree discount or disparage the employers' humanitarian motives in this movement, for they have been of tremendous influence and no such evolution could be entirely successful if such were not the case. I think, however, it is beyond dispute that up to the beginning of the present century most manufacturers built houses and improved conditions in the plant because by so doing they more easily attracted the most and best workmen. In other words, they did what they thought would appeal to the workman as an individual and not the individual's family.

### *"Houses," and "Homes"*

The term "industrial house" means the home of the worker, that is, the home of the man who operates our plant. The word "home" implies the word "family," and it is the family that I wish you to consider because it is the great basic unit of our modern democracy. Probably the worst possible labor condition under which we could now operate any one of our plants would be to have all the men on our entire payroll housed in bunk houses. Our operation would then be based entirely on the unit of the individual. Inversely, we would be operating under the best possible conditions if all our men were to be housed, each with his own family, in an adequate dwelling located in a community providing the requisite social, educational and commercial privileges. Our advantage in the latter case would then be due entirely to the fact that our operation would be based on the unit of the family and not the individual.

Andrew Carnegie was one of the first of our large employers of labor to recognize that the family unit was fundamental, as is evidenced by the library movement which he started. Furthermore, in placing the libraries' operation and maintenance up to the people, he gives clear evidence that he recognized the danger of the employer assuming a paternalistic attitude which would result in more harm than good. Unconsciously perhaps, but certainly very effectively, the welfare departments in the plants of the Carnegie Steel Co., for many years have been dealing with the family unit. Our playgrounds clubhouses, community houses, athletic fields, visiting nurses, picnics, baseball games and band concerts are all matters concerning the family rather than the individual.

Using the family unit as a basis, let me analyze how the time of that unit is divided. Assuming that one of our employes works eight hours per day for 300 days in each year, his actual time spent in the plant is just 27 per cent.

Now, assuming the average family consists of five individuals, and that each family contains an average of 1½ workers, then the actual time spent by the family in the plant is only 8 per cent. That is to say, 92 per cent of the family's time can be classified as coming under the general influence of industrial housing.

To the average man the most interesting and important consideration in life is himself and his immediate family. He works for wages solely because he is thus enabled to obtain the necessities of existence and enjoy the pleasures of life. The wage itself is merely the medium of exchange. Surely the conditions under which this income is expended should be as carefully considered as are those under which the pay is obtained. Even though the conditions under which a man works may be as nearly perfect as possible, yet the very nature of our product makes the plant a strenuous place and an employe is entitled to complete relaxation when his day's work is finished. The home and community must be such that he can fully recreate himself for the succeeding day's labor and just as surely as we fail to insure his getting the proper home and community conditions, then we fail in getting the best that is in

From an address at the annual banquet of the Carnegie Steel Co., Jan. 8. C. L. Wooldridge is superintendent of the Carnegie Land Co.

any man while at work. If conditions are right, he will be just as eager to get to work as he is to finish his work and get to his home. In other words, they should balance and it will certainly be found that whatever improves conditions in the community, reacts just as potently on the workmen as improved conditions in the plant. In fact, when we consider that the family's time is divided as I have just indicated, that is, 8 per cent in the plant and 92 per cent in the community, we have reason to believe that the conditions in the community are of far greater importance than the conditions in the plant. We probably never have analyzed the matter in just this way because improved plant conditions immediately produced tangible results while the results of improved conditions in the community were less tangible and more difficult to measure.

We have gradually come to consider that the term "industrial housing" means not merely the providing of a shelter for the family but it comprehends stores, schools, churches, parks, recreation fields, playgrounds and other places of amusement. In addition to these, there must be provided complete utilities so that the family is not only sheltered in comfort and decency, but has the means of communicating socially with other families and may pass easily and quickly to and from place of work. I would not advocate that the employer provide all of these things for that would be paternalism in its worst form, but it is clearly to the employer's advantage to provide some of them and to see that the family has the opportunity to acquire the balance. Furthermore, those things provided by the employer should be of such a character as to insure that the standard of living is certainly not lowered by its example.

By far the most expensive and important part of industrial housing is the dwelling itself, and this also has passed through a startling evolution during the last 30 years. Thirty years ago we built good, spacious and very often beautiful houses. We had a fire place in every room and we usually had a room or two extra, not because they were needed but they did not cost much and so we built them anyway. As our communities began to grow, we found that houses began to cost more, and the more we built, the more they continued to cost. Then in order to hold down the cost we began to cheapen the quality; we omitted the fireplaces, and did not put as much material into our construction. Then we reduced the size of the house by omitting unnecessary rooms, and again further reduced the size of the remaining rooms, but still the cost continued to go up. Then some of us began to give up the house and we adopted the flat and apartment. But the same story repeated itself; the more we built, the more they cost. So again we reduced the number of rooms. Then we reduced the size of the rooms. Then we began all over again and reduced everything all around, that is, everything but the cost.

### *Building Simplified*

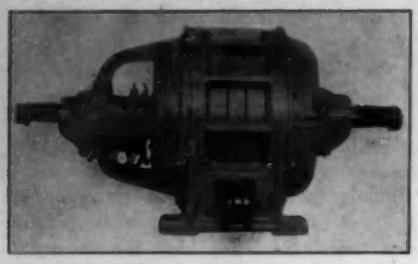
It is proper to state right here that one of the main contributing causes of this constantly increasing cost has been the attitude of labor in the building trades and allied industries. During the war, this frantic effort to hold down the cost resulted in some very bad industrial housing. Thousands of houses were built, which while presenting a very pleasing exterior, were utterly impractical from a utilitarian viewpoint. I have seen such houses where it was only possible to get furniture to the second floor by taking it through the second-story window. I have seen many bedrooms where it was impossible to close the door to the hall, or open the door to the cupboard after the furniture was placed. I visited one development where, in a majority of houses, there was no place for the piano except over the hot-air register. The piano was, and usually is, one of the workingman's standard pieces of furniture and must be considered.

This condition was so bad that two years ago in our own office we devised a set of standard tests which we apply to all house designs to insure against such results. One of the important benefits which has come out of this effort to reduce costs is that we have all discovered we do not really need as much house as formerly. We now welcome anything which tends to simplify housekeeping, and the small house certainly accomplishes this. I have been working intimately with architectural problems for the past 16 years and I know of no more difficult task than to design successfully a six-room house with outside dimensions 24 x 24 feet, the house to accommodate the workman's necessary furniture so that it can be placed without interference with doors, windows, hot-air registers and electric light switches.

What is of greater importance, I can state authoritatively that building costs are definitely lower than they were about six months ago.

There are still a great many problems in connection with industrial housing which are not satisfactorily solved. For instance, one of the gravest questions now confronting employers, who have housing developments, is the matter of obtaining adequate rentals. I have not heard of any such development in which the rents are producing anything like a fair return. In other words, such houses are being rented at rates which are far too low. This has two very bad effects. First, it has discouraged outside capital from building, because it cannot compete with the low rentals. Second, it actually discriminated directly against the workman who cannot obtain a company house. This latter condition would be avoided if the company could provide all the necessary houses, but in large plants this is almost unheard of and would rarely be possible. It is possible that the solution to this particular problem may lie in our new home owning plan because we are actually selling at cost to our employes a considerable number of houses. The home owning plan was placed in operation July 1, 1920. Since then, or during a six month period, we have sold 38 company-owned houses, 162 "outside owned" houses, and 16 houses to be built, or a total of 216 houses. Undoubtedly, all these questions will be worked out ultimately and I am confident that we finally will reach the degree of perfection in the community that has been attained in the plant.

TYPES OF HOMES BUILT BY CARNEGIE STEEL CO. FOR EMPLOYES. LEFT, NINETEENTH AVENUE, HOMESTEAD, PA.; CENTER, GRANT STREET, McDONALD, O.; RIGHT, CRAWFORD AVENUE, DUQUESNE, PA.



SMALL 440-VOLT INDUCTION MOTOR

## Develops Crane Motor

A new type alternating current motor for operation on cranes and hoists and having several features claimed to be radical improvements over former designs, has been developed by the General Electric Co. The new motors, one of which is shown in the accompanying illustration, are generally smaller in diameter and longer than old design motors of the same horsepower. They also are provided with larger shafts and bearings. In connection with the electrical characteristics it is stated that the maximum stationary torque is twice the running torque at rated frequency and voltage.

All motors up to and including 40-horsepower are rated on a 30 minute, 50 degree Cent. rise and from 50 horsepower up on a 60 minute 50 degree Cent. rise basis.

A new resistor designed for work with the new motors leaves enough resistance in the motor circuit when the controller is on full to cause the motors to run at approximately 89 per cent below full load rated speed when delivering full load torque. Among the advantages to be gained by the use of this resistor are reduced maintenance and smaller maximum current demands. It also is claimed that it protects the motor from abuse.

## Designs Magnet Switch

For operating electromagnets and at the same time affording protection from heavy inductive kicks, the Ohio Electric & Controller Co., Cleveland, has developed a magnetic switch of the 2-unit type. The two units are a magnetic switch and an operator's master switch, both of which are substantially and compactly built. Three positions are provided on the master switch, the neutral position being with the handle in a vertical position. When the handle is thrown to the left or forward position, the magnet energizing current is on; when thrown to the right or reverse position, the de-energized current is on. In the three successive positions, the controller closes the circuit for lifting the load; opens the circuit, at the same time reducing the arc and kick strain by employing a magnetic blow out and shunting a resistance across the magnet terminals; and reverses the current through limiting resistances for dropping the load quickly. In the magnetic switch all hinged joints are shunted and the resistance is enameled and set in clips in a case mounted back of the controller slate. The resistance may be inspected or replaced by opening the box about a hinge pin running horizontally through the lower part of the box.

## Suggests New Design for Reversing Machine

With the rapid development of the by-product coke industry there is an increasing need for efficient machinery for operating and controlling the operation of the ovens. One of the problems in connection with the successful operation of a by-product plant

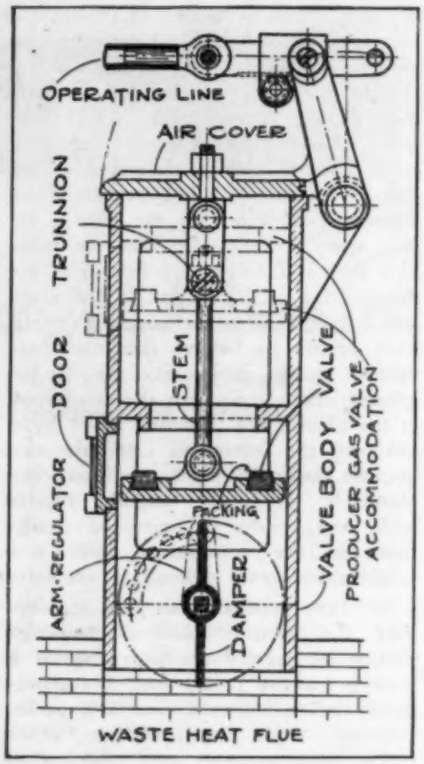



FIG. 2—VALVES AND DAMPERS FOR REGULATING AIR AND GAS

is the manipulation of the air, gas and waste heat valves and the dampers. The movement of these units must be co-ordinated so that all of the ovens in a battery shall function in harmony.

In accordance with this idea, Adolph A. Rackoff, engineer, Pittsburgh, has suggested a new design for a reversing machine, details of which are shown in Fig. 1. According to the designer, he has proposed a machine having no expensive drives and with all parts interchangeable. The machine is to be located at the end of

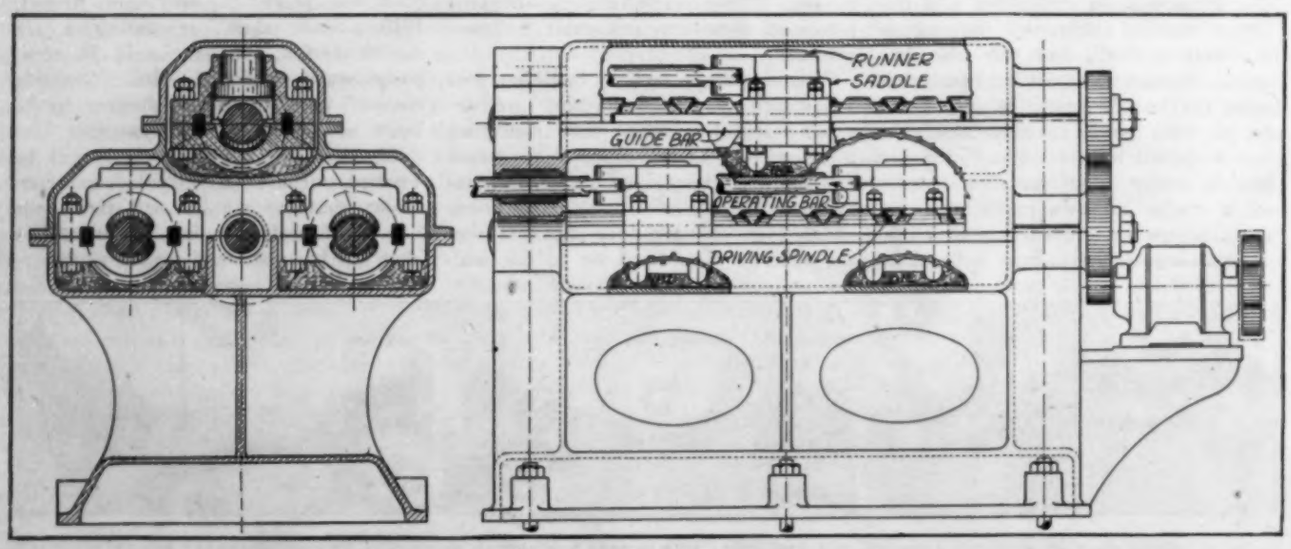



FIG. 1—SECTIONAL AND SIDE ELEVATION OF PROPOSED MULTI-SPINDLE REVERSING MACHINE FOR COKE OVEN PLANTS

each battery with the pulling elements parallel to the center line of the coke ovens. The motor pinion engages a series of pinions driving spindles which in turn impart a horizontal movement to the saddles to which the pulling rope and bars are connected. Referring to Fig. 1, the pulling element or saddle is guided by two horizontal bars and by a runner at the top. The ropes or bars attached to the saddles are connected at the other ends to the levers which operate the valves and dampers of the various ovens, as shown in Fig. 2. The grooves of the spindle transmit a sliding motion to the saddle and also lock it in a stationary position when the motor is stopped. It also is locked at the end of travel at either extremity of the spindle.

The same idea has been incorporated in Mr. Rackoff's design of an independent machine, having a single spindle instead of three as shown in Fig. 1.

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## American Malleable Iron

(*Concluded from page 357*)

carbon in iron, as shown in Fig. 5 and is incapable of further change as long as the temperature remains unchanged. The product then is still whitish in fracture and very brittle.

If the temperature is allowed to decrease the solubility of carbon grows less and more temper carbon will form if the material is held sufficiently long at the lower temperature. However, no ferrite will be formed at any temperature above the critical point. The ground mass above this point will remain a homogeneous solid solution, differing only in carbon concentration from that remaining at higher temperatures.

If the temperature is carried down to 1300 degrees, that is, as low as $A_{c1}$ the carbon is completely insoluble, though equilibrium may not be reached unless the approach to this temperature is very slow. In case the time at 1300 degrees is not very long, a structure as shown in Fig. 6 will result, consisting of temper carbon surrounded by ferrite which in turn has a background of still incompletely decomposed mix crystal persisting from the higher temperature. At temperatures above the critical point, this ferrite separation does not occur, the structure strongly resembling Fig. 5, except as to detail in the metallic matrix.

Still further treatment at or slightly below will result in the complete graphitization of the product as shown in Fig. 7 which represents the structure of malleable cast iron. According to Archer's views as to the solubility of carbon at $A_1$, graphitization is always completed only by treatment below $A_1$, as outlined above. Graphitization is accomplished commercially by just such a heat treatment, that is, by heating first to a fairly high temperature for a considerable period and then sufficiently cooling slowly to a temperature below the lower critical point of the stable system.

The maximum temperatures and time chosen are largely a matter of individual judgment. The exact location of this line on the equilibrium diagram unfortunately has not been the subject of adequate research. Much remains to be done in mapping its cause exactly. Enough is known, however, to indicate quite clearly that it joins a point close to the left end of the line representing the freezing of the eutectic with a point at or just below $A_{c1}$ at nil carbon. The line is not far from straight but whether or not it is slightly concave up or down is not definitely known. Furthermore it has not been clearly shown whether its ends coincide exactly with the critical points of the system $Fe_3C$—Fe referred to or whether they are merely so close to these points as not to have been distinguishable by laboratory methods.

These points are of very great academic interest but from an operating viewpoint are inconsequential. No operating errors will be involved in considering the line to be straight and joining the two points mentioned.

### *Effect of Exposure to Heat*

Fig. 9 shows in diagrammatic form the decrease in combined carbon according to the time of exposure to various temperatures. It will be noted graphs are given for each of a number of temperatures. The horizontal or time ordinates have been plotted to scale; however, the values given for this dimension are suggestive only, since the rate of graphitization and hence the time to attain equilibrium at various temperatures is dependent on the chemical composition with respect to other elements in addition to carbon. The figure is given as an example of what may happen rather than for quantitative interpretation.

Speed is promoted by graphitizing the cementite at the highest possible temperature but to a certain extent at the expense of quality. Temper carbon differs from graphite only in form. It has been pointed out that these differences of geometric form are due to the temperature of the metal in which the free carbon is formed. Accordingly, the two forms temper and graphitic shade over into each other by infinitesimal degrees and the temper carbon formed at high temperatures may grow so coarse and flagy as to be almost graphitic. Fig. 8 shows the carbon produced by graphitization at 2100 degrees Fahr. far above any commercially possible temperature. It will be seen that this carbon is purely graphitic and bears no resemblance to the temper form. Also the matrix of malleable iron is not a continuous mass but consists of an assemblage of individual grains as shown in Fig. 7. The character and size of this grain structure is influenced by changes of heat treatment, introducing another viewpoint for the selection of annealing temperatures. Moreover, high temperature varies from 24 to 60 hours, culties due to the deformation of castings, destruction of pots and fusing of packing material. An attempt to too far reduce the annealing period by a rise in temperature therefore is usually inadvisable.

### *Rates of Cooling*

Commercial practice involves a maximum temperature of the castings of between 1500 and 1800 degrees Fahr. The time for maintaining the maximum temperature varies from 24 to 60 hours, the longer periods properly accompanying lower temperatures. The commercial rates of cooling are variable, ranging from five to 12 degrees per hour.

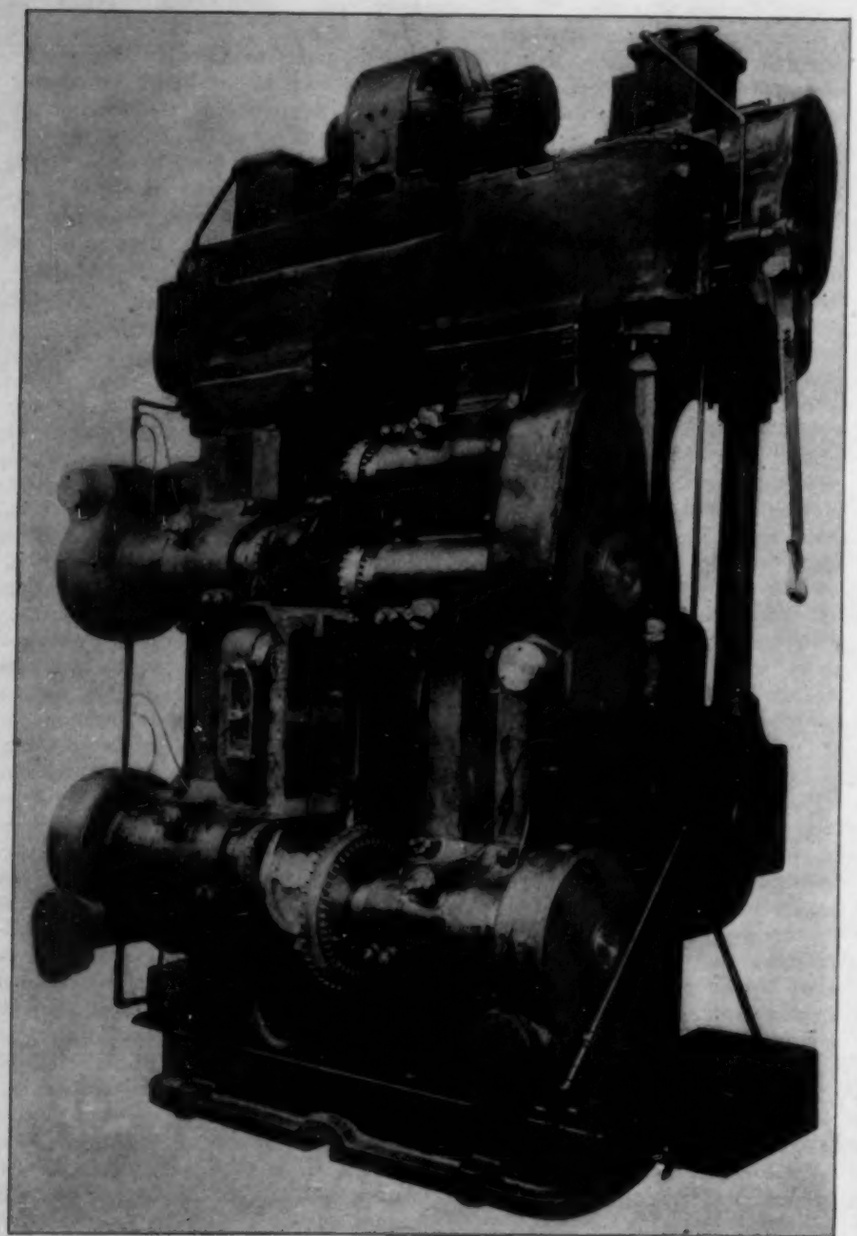
The best practice in general is opposed to the highest temperatures, the minimum time of holding and the fastest cooling and favors a maximum temperature not far above 1600 degrees, a time not less than 40 hours at that temperature, and a cooling rate certainly not faster than 10 degrees per hour and preferably less.

When properly heat treated, malleable cast iron contains no combined carbon except just under the surface. It is practically impossible to entirely eliminate these last traces of pearlite from the casting, but this ingredient can and should be reduced to the point where it is equivalent to not more than 0.15 per cent of combined carbon as referred to the total weight of the casting.

The more or less unavoidable oxidizing conditions in annealing remove some carbon from the surface. The extreme surface of malleable generally contains about 0.40 or 0.50 per cent combined carbon, while metal more than 0.1-inch below the surface is but little affected. Malleable castings sampled so as to include no material less than ⅛-inch below the surface will have nearly the ultimate composition of the original hard iron, except for the absence of combined and the presence of free carbon. If the sample is taken to include the entire cross section of metal the total carbon will vary with the thickness of the casting and will range from 0.40 per cent or even less up to the original carbon of the hard iron.

## Drum Miller Finishes Two Surfaces at Once

For machining one surface or two parallel surfaces on several castings at the same time, a new drum type continuous milling machine has been designed on which a number of castings to be finished are clamped around the perimeter of the drum. This machine, which is built by the Newton Machine Tool Works, Inc., Philadelphia, is compactly designed and requires comparatively little floor space. Two small cutters are used for roughing and one large cutter for the finishing out.



EACH SIDE OF THE MILLING MACHINE IS PROVIDED WITH TWO ROUGHING CUTTERS AND ONE FINISHING CUTTER

A feature of the miller is that by finishing two sides of each casting at the same time absolute parallelism is obtainable in addition to the economy through reduced handling of the pieces. All spindles have individual adjustment and are driven by worms and worm wheels so arranged that the cutting speed of the finished cutters is about 80 per cent of the speed of the roughing cutters. Pick-off change gears provide variable speeds to the cutters. The drum is rotated at a determined rate by a herringbone gear through a worm and worm wheel and is adjustable for speed.

Revolving parts including all gearing and splined shafts are inclosed and run in a bath of oil pumped from the reservoirs on either side of the machine. The spindles and the slow running bearings are lubricated by pipe connections with a special system of oiling to prevent flooding. As shown in the illustration, each casting is clamped to the drum by one clamp with a double bearing, this method simplifying the handling operation.

## Book Review

*Chronology of Iron and Steel* by Stephen L. Goodale; leather; 294 pages, 4 x 6¼ inches; published by the Pittsburgh Iron & Steel Foundries Co., Pittsburgh, and for sale by THE IRON TRADE REVIEW, Cleveland; price $5 postpaid.

Important events in the development of iron and steel since pre-historic times have been compiled by Stephen L. Goodale, professor of metallurgy, University of Pittsburgh and edited by J. Ramsey Speer, chairman of the board of the Pittsburgh Iron & Steel Foundries Co. These developments are recorded in chronological order and are indexed in such a way that reference to any subject is readily available.

In a foreword the editor emphasizes the importance of iron and steel in every-day life and touches upon the the difficulty experienced in "sticking to the text," because "so many things outside of the industry have had such far reaching effect."

The chronology begins with the Biblical reference to Tubal-Cain as "the forger of every cutting instrument of brass and iron." Early developments in Egypt, Asia Minor, Assyria, Babylon, China, India, Austria, Greece, Italy, ancient Britain and ancient America are recorded. This is followed by historical data covering the period from 507 B. C. up to the present time. Beginning with the year 1776 the editor has designated the years 1776 to 1783 as the "revolutionary war period;" 1783 to 1856 as the "period of scientific development;" and 1856 to 1900 as the "steel age."

The book takes into account the scientific progress in iron and steelmaking in all parts of the world, the principal contributions to the knowledge of the industry being from English, French, Swedish, German and American investigators. The record from the early part of the nineteenth century up to 1920 deals with the rapid progress of the industry in the United States in entertaining detail, the important steps in the developent of many metallurgical processes being traced in a painstaking manner.

# Late News of the Societies

## Notes on Past and Coming Meetings of National and Local Trade and Technical Organizations

AT a meeting held in the Engineering Societies building, Jan. 20, a New York section of the Industrial Cost association, was established. This section is the first of many to be established in industrial and financial centers. The association, whose headquarters are in the Peoples Gas building, Pittsburgh, aims to stimulate interest in correctly determined costs and accounting terminology.

Among the speakers at the meeting was C. H. Smith, Westinghouse Air Brake Co., Wilmerding, Pa., who discussed the benefits of the organization as applied to his own company. A. A. Alles Jr., secretary-treasurer of the national association, outlined the progress of the organization. The importance of local sections was emphasized by W. E. Hundley, Mesta Machine Co., Pittsburgh, and the value of the association to the plant manager was outlined by Prof. W. Rautenstrauch, Columbia university, New York.

Officers of the association are: Chairman, M. M. Moore, Mesta Machine Co, Pittsburgh; vice chairman, E. S. Schench, Brunswick Refrigerator Co., New Brunswick, N. J.; secretary-treasurer, Fred G. Roberts, S-K-F Industries, New York.

* * *

### Will Discuss Boiler Code

The National Board of Boiler Inspectors will hold its first meeting in Detroit, Feb. 2, 3 and 4. At the same time the boiler code committee of the American Society of Mechanical Engineers will also meet in Detroit.

* * *

### Buffalo Engineers To Meet

"Modern Practice in Arc Welding" is the subject of an address to be delivered by A. M. Candy, Westinghouse Electric & Mfg. Co., Pittsburgh before the Buffalo section of the American Society of Mechanical Engineers. The meeting will be held Feb. 15 at the University club.

* * *

### Super-Power Zone Is Explained

William S. Murray recently addressed the Providence Engineering society, Providence, R. I. on the subject of the proposed super-power zone. Mr. Murray is on the staff of the super-power survey being conducted by the United States department of the interior.

* * *

### Favor Engineer Registration Bill

Approval of a revised version of a bill for the registration of engineers practicing in Massachusetts has been given by the Boston chapter of the American Association of Engineers who are its authors. Similar legislation has already been adopted by 14 states. Under present laws builders are required to have licenses but there is no existing statute to test the competency of the engineers who plan the construction. The proposed bill provides that licensed engineers from other states be permitted to practice in Massachusetts if the privilege is reciprocated by other states.

* * *

### Discusses Notch Bar Tests

At a meeting of the Cleveland chapter of the American Society for Steel Treating, Friday evening, Jan. 21, at the Cleveland Engineering society, Dr. S. L. Hoyt, metallurgical engineer, wire division, Nela Park Laboratories, Cleveland, presented a paper entitled "Impact Properties of Metals in the Notch Bar Test." In defining what constituted a notch, he pointed out that shafts drilled with oil holes and machine parts scored either in production or service were to be included in the notch classification. Since failure frequently occurred from this source, Dr. Hoyt suggested that all parts which were liable to the notch effect should be heat treated to secure notch toughness.

* * *

### New Members Are Admitted

Plans for the enlargement of the Chicago Foundrymen's club were made at the Jan. 18 meeting, when ten applications for membership were accepted. The organization is endeavoring to extend the scope of its work so that more foundry foremen and superintendents can attend the series of talks and discussions included in the program each year. Officers for 1921 were chosen as follows: President, H. W. Ufer, Griffin Wheel Co.; vice president, John E. Schindler, Garden City Foundry Co.; secretary-treasurer, George H. Manlove, Penton Publishing Co. The new directors for two-year terms include: C. F. Heywood, Burnside Steel Co.; F. H. Blankenhorn, Chicago Steel Foundry; A. W. Gregg, Whiting Corp., Harvey, Ill.; Alex A. Stewart, American Brake Shoe & Foundry Co.

* * *

### Will Discuss Unemployment

Herbert Hoover will be the principal speaker at a two day series of meetings in Syracuse, N. Y., at which steps will be taken toward welding the engineering forces of the nation into one organization. On Feb. 14 the executive board of the American Engineering council of the Federated American Engineering Societies will hold sessions culminating in the evening with an address by Mr. Hoover who it is expected will outline the new council's plan for dealing with industrial relations and particularly with human waste as it affects the present army of unemployment. On Feb. 15 the national council of the American society of Mechanical Engineers will convene, the society's new president, Edwin S. Carmen, presiding.

The Syracuse meeting will mark the beginning of a movement to organize the engineers on a territorial basis. As a result of a report submitted to the council by Mr. Hoover, the council will probably encourage the formation of state engineering councils, a process already under way in many states including Massachusetts and Minnesota.

## Convention Calendar

Feb. 14—American Engineering Council of the Federated American Engineering societies, Syracuse, N. Y.

Feb. 14-17—American Institute of Mining and Metallurgical Engineers, annual meeting, Engineering Societies building, 29 West Thirty-ninth street, New York.

Feb. 15—American Society of Mechanical Engineers, national council, Syracuse, N. Y.

April 21-23—American Electrochemical society. Spring meeting at the Hotel Chalfonte, Atlantic City, N. J. Joseph W. Richards, Lehigh university, Lehigh, Pa., is secretary.

May 5-6—British Iron and Steel Institute. Spring meeting at the Institution of Civil Engineers, Great George street, London, S. W. 1. The secretary is George C. Lloyd, 28 Victoria street, London, S. W. 1.

May 9-10-11—American Association of Engineers. Annual convention to be held in Buffalo. National association headquarters, 63 East Adams street, Chicago.

May 19-20—National Machine Tool Builders' association will hold its spring convention at Hotel Traymore, Atlantic City, N. J.

# Men of the Iron Trade

**Personal News of a Business Character Regarding the Men of Affairs of the Industry**

SAMUEL A. BENNER, formerly vice president of the Federal Steel Export Co., New York, and previously general manager of sales of the American Steel Export Co., New York, is to become president of the Empire Tube & Steel Co., College Point, L. I., it is announced. Mr. Benner's experience in the iron and steel industry embraces a period of 33 years. These began in 1888 with his first position in Carnegie, Phipps & Co., Ltd. In 1892 following consolidation of that company with the Carnegie Bros. & Co., Ltd., as the Carnegie Steel Co., Ltd., he was made chief clerk in the general sales department. From 1897 to 1899 he represented the company in Canada and Mexico and in 1901 was made manager of foreign sales. He left the company in 1902 to head the sales organization of the International Nickel Co. and returned to the Carnegie company in 1904 as general manager of sales. He resigned in 1911. He then was made assistant to the president of the Pittsburgh Steel Co., becoming associated with the American Steel Exports Co. in 1916 and later going to the Federal Steel Export Co.

J. C. Jenkins has been elected president of the Belding Foundry Co., Belding, Mich.

T. P. Kelly, formerly assistant treasurer of the Crane Co., Chicago, has been elected treasurer.

M. V. Dreyspool, 51 Chambers street, New York, has been appointed export and domestic representative of the Belfont Iron Works, Ironton, O.

F. C. Milliken, who has been connected with the Alan Wood Iron & Steel Co., Philadelphia, for many years, has been appointed assistant to the president, W. W. Lukens.

H. A. Raymond, ore sales agent of the Cleveland-Cliffs Iron Co., Cleveland, is recovering from a fracture of the leg sustained recently while playing squash at the Tavern club, Cleveland.

W. O. Winston of Minneapolis, was elected president of the Association of General Contractors of America which held its annual convention recently in New Orleans.

E. F. Fitch, director of purchases of the American Radiator Co., Buffalo, has resigned to become associated with the Florida Terminal Co., Savannah, Ga., as vice president and general manager.

D. B. Fuller, formerly vice president of the American National bank, San Francisco, is president of the Standard Culvert & Steel Barrel Co., recently organized in San Francisco.

Walter N. Drew, assistant sales manager of the Walcott Lathe Co., Jackson, Mich., has been made sales manager, succeeding Allen Crawford, Jr., resigned.

Alba B. Johnson, former president of the Baldwin Locomotive Works, Philadelphia, has resigned as a director of both that company and its subsidiary, the Standard Steel Works Co., Philadelphia.

D. B. Marwick, general manager of the Stanley Steel Co., Ltd., Hamilton, Can., has been made general sales manager of the company and H. C. Hatch succeeds him as general manager.

L. A. Lenhart, recently made vice president of the Youngstown Steel Car Co., Niles, O., has resigned as plant manager of the General American Tank Car Corp., East Chicago, Ind.

Bernard M. Baruch, chairman of the war industries board, has been awarded the distinguished service medal by President Wilson in recognition of Mr. Baruch's services during the world war.

F. P. Wood, vice president of the Burlington Steel Co., Ltd., Hamilton, Canada, has been elected president, succeeding the late Sir Frank Baillie. W. D. Ross has been elected vice president to fill the vacancy caused by Mr. Wood's promotion.

Andrew Carrigan and Andrew Carrigan Jr., have announced their partnership as the Andrew Carrigan Co., Rialto building, San Francisco, to represent hardware, iron and steel, fire arms and sporting goods manufacturers.

Herbert A. Pike, president and treasurer of the Boston Pressed Metal Co., Worcester, Mass., has resigned as a director of the Park Trust Co., of that city, which has been taken over by the Merchants National bank. New directors elected by the Park Trust Co. include Aldus C. Higgins, treasurer, and George N. Jeppson, secretary, both of the Norton Co., and Harding Allen, Barre, Mass., iron founder.

Louis A. Way, who has been made assistant to the president of the Duquesne Steel Foundry Co., Pittsburgh, in charge of sales, formerly had been with the company 16 years before going with the Lewis Foundry & Machine Co., Pittsburgh, from which he resigned as works manager Feb. 1.

Horace Mager, formerly in the purchasing department of the Aluminum Co. of America, has become associated with the J. S. Morrison Co., Pittsburgh, to handle that company's eastern representation of the Marietta Mfg. Co., Point Pleasant, W. Va., selling structural and plate work, machine work and castings.

L. A. Pierrong has been appointed sales representative in New York of the Lake Erie Bolt & Nut Co., Cleveland. Mr. Pierrong, whose headquarters will be at 111 Broadway, succeeds the late Irving S. Ventres. The company also has appointed J. W. Judge, Call building, San Francisco, Pacific coast representative.

N. J. Ross, treasurer of the Beloit Iron Works, Beloit, Wis., has resigned after 50 years activity in the company and its predecessor. E. H. Neese, vice president of the company, succeeds Mr. Ross, becoming both vice president and treasurer. Alonzo Aldrich and Hamilton N. Ross continue as president and secretary respectively.

James Swan, for three years general manager of the Herreshoff Mfg. Co., Bristol, R. I., who resigned Dec. 1, has been elected president of the Groton Iron Works, Groton, Conn., succeeding E. A. Morse, who will be active manager of the Virginia plant of the United States Steamship Co., the parent company of the Groton Iron Works.

R. M. Marshall has resigned as blast furnace superintendent at Coatesville, Pa., for the Midvale Steel & Ordnance Co., to become general manager of the American Manganese Mfg. Co., in charge of the latters' operations at Dunbar, Pa., effective Feb. 1. M. J. Scammell resigned recently as general superintendent of the company's plant at Dunbar.

# Men of the Machinery Trade

**Personal News of a Business Character Regarding the Men of Affairs of the Industry**

S W. Dudley, of Edgewood, Pa., resigned effective Feb. 1 as chief engineer of the Westinghouse Airbrake Co., Wilmerding, Pa. He has accepted a professorship of mechanical engineering at Yale. Mr. Dudley started in 1903 as a special apprentice with the Westinghouse Airbrake Co. and was rapidly promoted. In 1914 he became chief engineer. Mr. Dudley is a member of the American Society of Mechanical Engineers, the Engineers' Society of Western Pennsylvania, the New York Railroad club, the University and Yale clubs, of Pittsburgh, the Yale Engineering and the American Electric Railway and the Airbrake associations.

Graydon Stetson, vice president of the Reed-Prentice Co., Worcester, Mass., has been appointed one of the receivers for the E. R. Sherburne Co., Boston.

E. O. Blanchard, formerly reclamation engineer with the Standard Parts Co., Cleveland, now is associated with the Empire Machinery Exchange Co., Newman-Stern building, Cleveland.

Samuel M. Nicholson, president of the Nicholson File Co. and of the American Screw Co., both of Providence, R. I., is cruising in southern waters.

M. O. Haeger, for the past four years associated with the Abell-Howe Co., Chicago, in a sales capacity, has been appointed contracting engineer for that company.

Frank H. Page, president of the National Equipment Co. and treasurer of the Van Norman Machine Tool Co., both of Springfield, Mass., is in Florida for the winter.

William A. Kimball, for the past 14 years purchasing agent of the New Departure Mfg. Co., Bristol. Conn., has been appointed to the new position of general superintendent of the company's Bristol plants.

Frank H. Willard, vice president and general manager of the Graton & Knight Mfg. Co., Worcester, Mass., has been appointed chairman of the transportation committee of the Worcester chamber of commerce.

E. A. W. Jefferies, head of the gas engineering department of the Morgan Construction Co., Worcester, Mass., and Maj. W. G. Penfield of Bridgeport, recently were added to the board of directors of the Hobbs Mfg. Co., Worcester.

N. E. Weiner, 913 Madison avenue, Toledo, has been made representative in that city for the Sewell Cushion Wheel Co., Detroit.

Warren C. Anderson, Detroit, director of the Ford Motor Co. branches in Europe for the past two years, has resigned.

Edmund T. Boland, formerly factory manager of the Kissel Motor Car Co., Hartford, Wis., has joined the Theo. Armleder Co., Cincinnati, maker of motor trucks, as works manager.

E. S. Taylor, assistant to the president of the Pullman Co., Chicago, recently was appointed director of purchases in addition to his regular duties.

F. C. Seeger has been placed in charge of the offices recently opened in the Phelan building, San Francisco by the Doehler Die Casting Co., Brooklyn, Chicago and Toledo.

F. W. Hall of Cincinnati, has been elected president of the Ohio Sand and Gravel association, M. R. Evans of Zanesville, vice president and F. C. Fuller of Portsmouth, secretary and treasurer.

Paul G. Leoni, managing director of the Iron & Ore Corp. of America, sailed Jan. 25 on the steamship ROTTERDAM, for a 2-months' trip to Europe, during which time he will visit steel works in France, Belgium, England and Germany.

John A. Oartel, safety engineer of the Carnegie Steel Co., Pittsburgh, addressed the seventh of a series of 16 biweekly safety round tables conducted by the safety division of the Milwaukee Association of Commerce in Milwaukee, Jan. 20.

F. E. Myers, president of the Ashland Pump & Hay Tool Works, Ashland, O., has retired as president of the Cleveland Southwestern & Columbus Electric railway and has been elected chairman of the board of directors.

S. R. Cound, general manager of the Baldwin Canadian Steel Corp., Toronto, Ont., is enroute to England on three months' leave. His departure followed closely upon the first production of tin plate in the Toronto plant.

Frederick R. Pratt, Providence, R. I., mechanical engineer for the Whitin Machine Works, Whitinsville, Mass. will sail from San Francisco, Feb. 8, for a five months trip to the Orient. He will accompany Lawrence Murray Keeler, agent for the Whitin Machine Works.

A. A. Hutchinson, construction engineer formerly with the Potomac Electric Power Co., Washington, has been placed in charged of the offices recently opened at 521 Candler building, Atlanta, by the Combustion Engineering Co., 11 Broadway, New York.

R. R. Merigold has been made purchasing agent of the Stanley Rule & Level Co., New Britain, Conn., to succeed M. H. Pease, transferred to the Stanley Works in that city. Mr. Merigold has been assistant purchasing agent for several years and is succeeded in that position by Fred Gross.

Henry C. Hine, for 30 years secretary of the Traut & Hine Mfg. Co., New Britain, Conn., will retire Feb. 6 at which time the company's annual meeting will be held. Frank L. Traut vice president, will succeed Mr. Hine, Ernest N. Humphrey will succeed Mr. Traut and A. C. Sternberg will be made assistant treasurer.

E. V. Brown, recently appointed Chicago manager for the Hill & Griffith Co., Cincinnati, manufacturer of foundry facing, equipment and foundry supplies, formerly had been connected with the Whiting Foundry Equipment Co., now the Whiting Corp., Harvey, Ill., and the Municipal Engineering & Contracting Co., Chicago.

Earl F. Whitaker has organized a business as manufacturer's agent and distributor of steel, fuel and factory supplies and has established headquarters at 15 Park Row, New York. Mr. Whitaker far 20 years has been engaged in designing, producing, inspecting, buying, advertising and selling.

# Steel Companies Are Fortified

## Earnings Reports of Large Units for 1920 Do Not Reflect Industrial Depression Which Was Apparent in Many Lines—Vast Financial Resources Accumulated—Railroad Wage Reductions Loom—General Financial News

BY JOHN W. HILL, FINANCIAL EDITOR

THE preliminary annual earnings report of a number of important steel companies disclose that not only the United States Steel Corp. but that strong independents are well fortified to withstand any ordinary business depression. With earnings of $177,174,136 in 1920 the United States Steel Corp. showed a better record during last year than in any year previous to the war. This is considered remarkable when it is remembered that the latter part of last year was marked by acute depression in many lines of industry which however was not felt by the largest steel producers in the same way as the independent companies because it had accumulated a large order book at its minimum price schedule.

Since its organization in 1901 the Steel corporation has earned a total surplus available for dividends of $1,818,167,346. The surplus last year was $110,136,105 against $76,794,582 in 1919. The peak year was in 1916 with a total of $271,531,730, which was before this country entered the war and before the excess profits taxes began to be applied. The high year prior to 1913 was in 1907 when the total was $104,565,564. After dividends, the corporation has an accumulated surplus of $816,231,943. Its working capital is estimated at $600,000,000, the highest in its history. It is an interesting fact that the surplus after dividends of $59,501,303 in 1920 was exceeded both in 1907 and 1906, when the amounts were $69,179,837 and $62,742,862 respectively.

Earnings of the Bethlehem Steel Corp. also failed to reflect the general depression. The net income for the year was $15,356,860 which was only slightly less than $15,930,390 in 1919. The accumulated surplus of the company before dividends was $137,542,775 at the close of 1919. The Brier Hill Steel Co., Youngstown, O., earned $3,269,188 and increased its surplus to $21,205,972. The Inland Steel Co. earned net profits of $4,107,061 in 1920, and added to a surplus which now stands at $18,708,681. The picture of the financial condition of the steel industry thus far presented is an encouraging one and testifies to the fundamental soundness of the industry as well as to the foresightedness of its leaders.

Developments of outstanding interest in the general situation last week included the further improvement of the federal reserve system's reserve ratio; the agreement on reparation among the allies; the advance in foreign exchanges; and the decision of the railroad executives meeting in Chicago last week to find some way to cut expenses $500,000,000 annually. Wage cuts or further layoffs on a large scale are the only alternatives, the executives say. The brotherhoods have served notice of their intention to fight cuts and the case probably will find its way to the railroad labor wage board. In view of the general trend of wages in other industries, and the lowering cost of living it is believed that reductions in railroad employes scales are inevitable. The significance of this to the iron and steel and other industries is that this event will be a forerunner to lower freight rates.

## Bethlehem Head Believes Low Point Reached

Gross sales of the Bethlehem Steel Corp. for 1920 were $274,431,236 compared with $281,641,907 in the preceding year, according to the preliminary report of the company. The net earnings of $37,351,553 were almost identical with the $37,441,218 earned in 1919. After all charges and allowances to cover federal taxes the net increase available for dividends was $14,458,835 compared with $15,356,860 in the previous year.

The net income for the year represents a profit of 5.27 per cent on the volume of business done and after payment of $3,450,000 for preferred dividends, leaves 18.35 per cent on the $60,000,000 of common stock outstanding. In 1919, 5.45 per cent was earned on gross and in 1918, 3.55 per cent. In 1919 the company earned 19.80 per cent a share on its common stock. The following table shows the comparative income account:

| | | |
|---|---|---|
| Gross sales | $274,431,236 | $281,641,907 |
| Expenses, taxes, etc. | 238,468,865 | 246,494,159 |
| Net manufacturing profit. | 35,962,371 | 35,147,749 |
| Other income | 1,389,182 | 2,293,469 |
| Total net earnings | 37,351,553 | 37,641,218 |
| Interest and discount | 8,951,204 | 9,518,206 |
| Balance | 28,400,350 | 27,923,013 |
| Depreciation and depletion. | 13,941,515 | 12,566,132 |
| Net income | 14,458,835 | 15,356,860 |

Declaring that he believed that the low point in the iron and steel industry has been reached, President Eugene G. Grace, of the company, said that production would increase, depending upon the rapidity with which all interests recognized the importance of returning to more nearly normal conditions. Liquidation, he said, has not been completed in all cases but it is surely taking place. In his view "all interests, manufacturers, merchants, employers and employes should do their part and when this is done we may expect business to revive and go forward upon a good sound basis."

In connection with the report the following statement was issued by the company:

"The allowance of $13,941,000 for depreciation and depletion exceeded last year's allowance by $1,375,000. This increase was caused by the increased value of plants in operation throughout the year and in addition all inventories were adjusted in value to either the cost of production or purchase price, using the lowest figure in each case.

"Orders on hand Dec. 31, 1920, amounted to $145,287,000 as compared with $231,422,000 Dec. 31, 1919. New business booked during the year amounted to $168,296,000.

"The steel plants of the corporation producing commercial tonnage are operating at about 25 per cent capacity while a considerably better rate of operation exists in departments where more highly finished commodities are produced, and in the shipyards. The three large shipyards of the corporation have sufficient work on hand to insure reasonably full operations throughout the year.

"There was spent during the year $32,900,000 for extensions and additions to the property, the expenditures for new construction during 1921, eliminating the $20,000,000 to be spent on the five 20,000-ton ore ships to transport Chilean iron ore, and which has already been provided for by the sale of marine equipment trust certificates, should be relatively small as compared with the last few years, all the more important present construction programs having been completed. No new financing is required nor is there any in mind at this time."

## Net Earnings Lower

The report of Transue & Williams Steel Forging Corp., Alliance, O., for 1920 shows net profits after federal taxes of $670,734, against $735,988 in the preceding year. In the balance sheet of Dec. 31 plant and equipment are shown at $1,121,123 compared with $991,160 in 1919. Securities owned declined from $1,853,003 to $1,470,107

and there was decrease of cash to $82,139 from $260,798 reported one year before. Inventory increased to $1,258,429 from $711,518.

## Foundry Equipment Men Expect Good Year

That 1921 will be a good year in the foundry equipment field was the consensus of opinion at the annual convention of the sales, service and manufacturing departments of the American Foundry Equipment Co., held in Chicago, recently. In numerous cases conditions exist which are holding up programs for extensions and improvements at various foundries and as soon as these are removed representatives of the company believed, considerable new business will result. It was declared that although automobile plants generally are closed some of these will resume operations in February, and it was said that, due to recent restriction of manufacturing operations, there is developing a shortage of automobiles.

Frank D. Chase, of Frank D. Chase, Inc., Chicago, foundry engineer, spoke at the convention. He said he knew of developments which indicated a return to normal conditions much earlier than supposed. Verne E. Minich, president of the American Foundry Equipment Co., authorized the immediate execution of plans, suggested at the convention, whereby certain improvements will be applied to sand cutting and sand blast equipment manufactured by this interest. Mr. Minich also outlined methods by which the service department of the company will supplement the sales department in making its equipment of maximum usefulness. Especial attention was paid to developing plans for marketing the company's new molding machines of the electrically operated and gravity types; the latter type already has been applied extensively to the production of radiators and soil pipe.

## Betterment Is Near Says Brier Hill Chairman

Although present conditions are uncertain and production is light, improvement is in sight and the middle of the year should find business in a good condition, according to Chairman J. B. Kennedy, of the Brier Hill Steel Co., Youngstown, in a statement at the annual meeting of stockholders. With the vast unsupplied requirements of the country, the concensus of opinion is that a steady buying movement is certain to develop and an extended period of prosperity awaits the market turn, said Chairman Kennedy. Net earnings of the company after all charges were $3,269,188 compared with $1,136,421 in 1919 and $4,470,792 in 1918. The company charged off $1,175,000 for federal taxes and $948,876 for depreciated inventories. The surplus at the close of the year was $21,205,972. Current assets were reported at $9,000,901 against $6,659,197 in 1919. Total property investment was $30,440,907 as of Dec. 31.

During 1920 gross sales were $44,222,219 and with a single exception of 1917, were the largest in history. In 1919 gross aggregated $17,643,699. The payroll for the company and subsidiaries was $13,071,072 and the average number of employes 4999. Production of finished products in 1920 was 495,670 tons against 349,789 tons in the preceding year. Shipments last year amounted to 474,431 tons.

Chairman Kennedy reported that 1093 employes had subscribed to date for 15,223 shares of the company's common stock. Offering recently was made of 15,000 shares.

Stockholders re-elected directors as follows: James B. Kennedy, James H. Grose, George F. Alderdice, John Tod, J. G. Butler Jr., W. A. Thomas, John Stambaugh, Fred Tod and R. C. Steese.

The board of directors reorganized as follows: Chairman and general counsel, J. B. Kennedy; president, J. H. Grose; first vice president, G. F. Alderdice; vice presidents, J. G. Butler Jr., and John Tod; secretary, J. E. Parker; treasurer, N. B. Folsom. The following advisory committee was named: E. L. Ford, chairman; John Tod, John Stambaugh and W. A. Thomas.

## Receiver To Operate

The Industrial Trust Co., Providence, R. I., has been appointed temporary receiver of the Woonsocket Wringer Co., Woonsocket, R. I. It is authorized to operate the plant, to complete contracts, orders and work on hand until Feb. 2, when a hearing may be had on the question of making the receivership permanent. In the meantime creditors are enjoined from instituting suits against the corporation. The action was taken on the petition of Sullivan Ballou, secretary, of the company, who alleges it is insolvent. It is a $1,750,000 corporation. Walter S. Ballou, Providence, is president, and J. F. Fletcher, New York, treasurer of the company.

## Asks Funds for Mill

Stockholders of the Electric Steel & Forge Co., Cleveland, have been informed of a plan to offer additional stock to them on a basis of one share of preferred and one-half share of common for $50. Under this plan the company expects to raise $200,000 with which to build a rolling mill, the addition of which will make its equipment complete. In his letter to stockholders, President James H. Foster states that the proceeds of the mortgage recently placed on the property will be used to pay bills, but it will not provide funds for a rolling mill which would permit the company to make a full line of tool steel. The rolling mill would cost $100,000, it is said, while $100,000 additional is needed for working capital.

## Financial Crop Ends

SALES of the National Acme Co., Cleveland, for the first 11 months of 1920 totaled $16,461,929 compared with $11,715,043 for the corresponding period of 1919. Net profits after charges were $4,239,611 against $3,121,657 in the 11 months of 1919. Sales for November dropped to $766,275 compared with $1,441,064 in November, 1919.

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The annual meeting of the Wickwire Spencer Steel Corp. will be held at the Worcester, Mass., headquarters, March 15. No change among the officials is anticipated.

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The Stanley Rule & Level Co., New Britain, Conn., has petitioned the Connecticut general assembly for the right to increase its capital stock from $2,000,000 to $5,000,000, and to change its name to the Stanley Securities Co.

* * *

The Cleveland Machinery & Supply Co., Cleveland, Tenn., through its secretary and treasurer, Charles A. Horner, has filed a petition in bankruptcy in the federal court, claiming that the company is unable to pay its debts and surrendering its assets to satisfy the claims of creditors. The liabilities amounted to $26,548.20, and the assets were given at $25,669.84.

* * *

John L. Weeks and Robert D. Wood, receivers for the Sheffield Iron Corp., New York, have given notice to creditors that all claims must be filed by March 20, with the receivers at their office at 70 Broadway, New York. The receivership was ordered by the federal district court of New York following a suit filed by the Harbison-Walker Co., one of the creditors.

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Judge Frank L. Wilder, Bridgeport, Conn., has been appointed receiver for the Patterson Forge Co., Stratford, Conn., on application of James Patterson, who claimed that he gave up the active management of the company and turned over his stock upon promise that he should receive an annuity of $2000, paid in installments, but that the payments have not been kept up. He asks for the dissolution of the corporation.

# Obituaries

ROBERT Leitch, aged 38, superintendent of the Genessee furnace, Charlotte, N. Y., of the McKinney Steel Co., Cleveland, died at his mother's home in Cleveland, Jan. 28, two days after going there to recover from an illness. Mr. Leitch was a brother of James Leitch, manager of the Ferro Machine & Foundry Co., Cleveland. Robert Leitch has been with the McKinney organization about 17 years, the last eight of which were as superintendent at the Genessee furnace.

Frederick Wooster Randall, head of the Brooklyn Metal Ceiling Co., died Jan. 28 at his home in Amityville, L. I., aged 71 years.

John McInnes, for 20 years superintendent of hull construction for the Bath Iron Works, Ltd., Bath, Me., died recently in Scotland where he was traveling with his wife.

Samuel Kahn, treasurer of the Estate Stove Co., Hamilton, O., was found dead in his berth at Chicago Jan. 20. He was on his way to California to regain his health. He has been ill several months. Mr. Kahn was 61 years old.

Peter F. Jermain, general manager of the Milwaukee branch of the Otis Elevator Co., died Jan. 22 at the Mayo hospital in Rochester, Minn., following an operation. He had been ill two months. Mr. Jermain was 58 years of age.

William F. Lawrence, vice president of the Remington Arms-Union Metallic Cartridge Co., Inc., and treasurer of the American & British Mfg. Co., both of Bridgeport, Conn., died at his home in New Rochelle, N. Y., Jan. 28, aged 53 years.

Clemens Vonnegut, vice president of the Vonnegut Hardware Co., Indianapolis, died recently of pneumonia, resulting from an automobile accident. He was the oldest of four sons of Clemens Vonnegut Sr., founder of the business. He was 67 years old.

Charles H. White, founder and for many years the active head of C. H. White & Co., Boston, heating and ventilating engineers, died at his home in Everett, Mass., Jan. 24, aged 75 years. He gave up active business several years ago.

Thomas Fleming, vice president and manager of the Excelsior Iron Co., Cleveland, until his retirement some time ago, died at his home in Cleveland, Jan. 29. He was born in Ireland in 1849 and had lived in Cleveland since he was nine years old.

John Sherwin, president of the Chicago Hardware Foundry Co., with offices in Chicago and plant at North Chicago, died at his home in Highland Park, Ill., Sunday, Jan. 23, of hemorrhage of the brain a few hours after being stricken. He was 61 years of age.

W. H. D. Totten, who for some time represented the Carnegie Steel Co. in Cincinnati, died recently at his home in that city. At the time of his death he was secretary and a director of the Stewart Iron Co. of Kentucky. Mr. Totten was born near Pittsburgh, Jan. 14, 1865.

Martin Fennelly, Derby, Conn., who died unexpectedly in New York, Jan. 26, was for 40 years connected with the Whitlock Printing Press Co., and its successor, the Premier Potter Printing Press Co., Shelton, Conn., having been superintendent and later in charge of outside erection work.

Frank T. Stevens, president of the Plimpton-Hills Corp., Hartford, Con., plumbers' materials,, committed suicide Jan. 22 by jumping from the roof of the factory. He had been in ill health for the past three years. He was 57 years old and went to Hartford from Springfield, Mass., 10 years ago.

Curtis Claypoole, manager of the accounting department of the Princess Iron Corp., Glen Wilton, Va., died suddenly there Jan. 19. He was made treasurer of the Princess Furnace Co. in 1907 and remained with its successor in charge of accounting. Previously he had been vice president of the Wirt Electric Co., Philadelphia.

M. Everhard Smith, civil engineer and inventor of the escalator, committed suicide at his home in New York, Jan. 24. He shot himself. Mr. Smith was 72 years old. He was born in Germany, but had lived in the United States more than 50 years. Mr. Smith also had been associated in the construction of several of the largest bridges in the country.

Louis A. Casgrain, Beverly, Mass., prominent as an inventor and for many years attached to the staff of the United Shoe Machinery Corp., died in a Boston hospital, Jan. 24, aged 54 years. Besides many patents on shoemaking machinery, he had invented a number of devices for automobiles. He had received medals from scientific societies in the United States, France and Germany.

Herbert A. Andresen, president of the Andresen Co., Pittsburgh, publishers of *The Blast Furnace and Steel Plant*, *The Coal Industry* and *The American Drop Forger*, died Jan. 22 in St. Margaret's Memorial hospital, Pittsburgh. At one time he was on the business staff of the Penton Publishing Co., Cleveland. He went to Pittsburgh in 1910, joining the National Iron & Steel Publishing Co. which later became the Andresen company. He was born in Detroit 36 years ago and was educated there, in the University of Michigan and the Detroit College of Law from which he was graduated.

Frank Prox, head of the Frank Prox Co., Terre Haute, Ind., iron founder and one of the pioneer business men of that city, died at his home there Jan. 21. He was born in Papenburg, Hanover, Germany, May 19, 1840, and settled in Cincinnati in 1866, and went to Terre Haute in 1868. He embarked in business for himself in 1875 when he installed the first electric light plant in Terre Haute. On Jan. 27, 1890, Mr. Prox, in company with the late John F. Brinkman and the late W. R. McKenn, incorporated under the name of the Prox & Brinkman Mfg. Co., and bought the property of the Phoenix Foundry & Machine Co. Later Mr. Prox purchased the interests of the others.

John McGinley, one of the organizers and vice president of the West Penn Steel Co., Tarentum, Pa., died Jan. 29 in his home in that city. He became engaged in the iron and steel business in his youth and followed it through life, holding responsible positions with large concerns in Pennsylvania and Ohio. Born in Scotland 63 years ago, he came to the United States in 1881 and was employed by the Cleveland Rolling Mill Co., Newburg, O., until 1888. Then he joined the Kilpatrick Steel Co. at Leechburg as superintendent of its open-hearth department. In 1900 he went to St. Louis and after a short period there located in Tarentum with the Allegheny Steel Co., becoming affiliated with the West Penn Steel Co. when that company was organized in 1908.

# Here and There in Industry

**Live Information Which Records the Expansion of Various Lines of Productive Enterprise**

IN ORDER to finance the erection of two dams, to be built at an estimated cost of $2,500,000, the Arkansas Hydro-Electric Development Co., Boyle building, Little Rock, Ark., recently increased its capital stock from $500,000 to $3,000,000. The company had originally planned to make an initial development at a cost of $400,000, but because the demand for water power is so great, it was deemed advisable to build two dams. As the development will be strictly a water power proposition, the company will not be interested in any general line of equipment, but will be in the market for everything necessary in water power development and equipment. Dickinson & Watkins, Boyle building, Little Rock, are engineers in charge of the project. The company is now making active preparations to start the development about April 1, or as soon thereafter as possible. E. T. Stanfield is president of the company.

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ENLARGEMENT of its facilities or the purchase of new equipment are contemplated at this time by the Milwaukee Coke & Gas Co., Milwaukee, which recently increased its capital stock from $2,000,000 to $3,000,000. The additional stock has been issued as a stock dividend according to advices from the company.

* * *

ORGANIZED under the laws of New York, the Boro Products Co. has acquired the plant and business of the American Boro Products Co., 363 Court street, Reading, Pa., manufacturer of brass and bronze products. The plant will be continued in operation and the purchasing company has taken title to a tract of land on which it plans another plant.

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SILOS and water tanks will be manufactured by the Tennessee Silo & Tank Co., Knoxville, Tenn., which was recently incorporated with a capital stock of $25,000. In addition the company plans to sell ensilage cutters, gasoline engines, feed chutes, roofing of all kinds, etc. At present the company is undecided as to the leasing of a plant or the erection of one. It also is undecided as to what equipment it will need with the exception that a small machine with band saw, cut off saw and sticker, as well as machinery needed in the manufacture of water tanks, will be purchased. Officers of the company are: President and treasurer, J. J. Graham; vice president, James H. Copeland and secretary, Victor Henderson. Offices are at 208 Humes street, Knoxville.

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ESTIMATES are wanted by the Fleischer Woodworking Co., 405 Bristol street, Philadelphia, on post caps and bases, steel lintels over doorways, bearing plates, steel rolling doors, etc., for its new plant building which it is now erecting. This structure, which will be devoted to mill work and general woodworking, will be of brick two stories, 49 x 77 feet.

* * *

PLANS will be prepared by the Star Machine & Tool Co., Jackson, Mich., for. the erection of a new shop building, work on which will be started in the near future. This structure will be equipped with machine tools, and equipment valued at $20,000, and will be only the beginning of a large expansion, which the company plans. Gustave Meert is business manager.

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REPAIRS have been made to the plant of the Nekoosa Iron Works, Nekoosa, Wis., which was recently damaged by fire, and the company is now operating in all departments. The fire completely destroyed the brass foundry and considerable damage was done to the iron foundry. Equipment was damaged to the extent of $1000, while the building loss was estimated at $4000.

* * *

ERECTION of combination warehouses and factory buildings in St Louis, Kansas City, Mo., South Boston, Minneapolis, and a warehouse in connection with its plant at Philadelphia, recently was announced by the Berger Mfg. Co., Canton, through G H. Charls, general manager. Approximately $500,000 is being spent in erecting the buildings, two of which, costing $100,000 apiece, were recently completed at St. Louis and Minneapolis. The buildings in Kansas City and Philadelphia are now in course of construction, while ground is being broken for the South Boston structure. The warehouses were built with the idea of better filling the company's demand for sheet metal. Orders are to be filled at each of the warehouses and the products manufactured in the factory buildings adjoining.

* * *

ADVICES have been received to the effect the name of the Huntington Steel Foundry Co., Huntington, Ind., has been changed to the Armstrong Steel Castings Co., and not to the Strong Steel Foundry Co., as recently reported. The company manufactures steel castings and has a modernly equipped plant. L. R. Wright is one of the officers of the company.

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ADVICES have been received from the Wilbur White Chemical Co., Owego, N. Y., to the effect it recently purchased a 3-story brick building, in which it plans to take up the manufacture of additional organic chemicals. The capital stock of the company has been increased from $10,000 to $100,000. The company has also advised it will be in the market for transmission apparatus, and various other equipment.

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ANNOUNCEMENT has been made by the Sundh Engineering & Machine Co. of its establishment in its new plant, 1105 Frankford avenue, Philadelphia. The business, which is the manufacture of finishing machinery for brass mills and makers of hot and cold-rolled steel strip originated in the experimental workshop of August Sundh, the machines constructed by him for large brass mills in Connecticut and steel mills in the Pittsburgh district proving so successful that a company was incorporated with a capital stock of $100,000. The officers are: G. R. Rebman, president; A. Sundh, vice president and H. F. Winters Jr., secretary and treasurer. The latest addition to the staff is Wadsworth Doster, as sales manager, who was for 10 years associated with the Torrington Mfg. Co., Torrington, Conn.

# Here and There in Industry

**Live Information Which Records the Expansion of Various Lines of Productive Enterprise**

AT A recent meeting of the stockholders of the Lumen Bearing Co., Buffalo, it was decided to double the present capitalization to enable the company to develop its plant and equipment for handling the increased volume of business. The company has been engaged in the manufacture of brass and bronze castings, solders, babbitts and ingot metals for the past 20 years. During that period the plant capacity at Buffalo has been expanded from several hundred thousand pounds a year to 10,000,000 pounds, its present capacity. The original company was capitalized at a small amount, of which only $10,000 was paid in. After a few years the stock was increased to $60,000 and later to $200,000. At the present time the company is again expanding and a new stock issue is to be made. The executives of the company are: President and treasurer, W. H. Barr; vice president, C. H. Bierbaum; secretary, N. K. B. Patch; assistant treasurer, N. F. Young; general manager, H. P. Parrock and general sales manager, L. S. Jones. The company in addition to its plant at Buffalo, operates a plant at Youngstown, O., of which Kester Barr is manager. The combined capacities of the two plants approach 15,000,000 pounds a year. The Youngstown plant is devoted to caring for the needs of the steel business in that territory.

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ADDITIONAL dredging machinery and equipment will be purchased by the Monongahela & Ohio Dredging Co., Oliver building, Pittsburgh, which recently increased its capital stock from $50,000 to $125,000. The company plans to enlarge its river plant and in addition to machinery purchases will build a number of steel scows.

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PUNCHES, angle shears, splitting shears, bulldozers and other equipment, will be purchased by the Aykroyd Iron Works, Worcester, Mass., which plans to erect a new plant building. For the present the plans call for a building of brick and steel construction, 30 x 100 feet, but it will be so constructed as to be added later. The structure will be used for steel assembling work. The company is also erecting an office building, foundations for which are now complete.

* * *

PISTON rings will be manufactured in a new plant building now under construction at Fifty-fourth and State streets, Chicago, for the Miles Piston Ring Co. The building will be one and two stories, 100 x 161 feet, and will be equipped with modern equipment. When operating at capacity the plant will have an output of 100,000 piston rings daily. In planning the structure, the company has provided for the installation of shower baths, rest rooms and lunch rooms for the employes. The upper floor of the building will house the executive offices, while the back end of the roof will be used for storage outside. The entire lower floor will be used as the factory.

* * *

WORK has been completed on the erection of a new plant unit for the Economy Baler Co., Ann Arbor, Mich., and plans are now being prepared for the erection of a second unit, work to be started early in the spring. The unit just completed, is modern in every respect, and was laid out so as to give access to railroad shipping dock from all wings. The contract for the work has been placed with the Whitehead Kales Co., Detroit. The building is made entirely of structural steel with glass above and concrete below, and is 60 x 132 feet. Specifications call for crane ways capable of supporting a 10-ton crane, which was furnished by the Toledo Crane Co., Toledo, O.

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BECAUSE of the improvement in business and better prospects, the American Metal Products Co., 671 Kinnickinnic avenue, Milwaukee, will proceed immediately with its project of erecting and equipping a foundry and machine shop on a new site. It was originally intended to start work last fall. The main shop will be 80 x 220 feet, of brick and steel, with metal sash, located on a tract of six acres providing ample room for future expansion. The present construction and equipment work will cost about $75,000. The officers of the company are: President, George F. Staal, city engineer of Milwaukee; vice-president, W. J. Eberle; secretary-treasurer and general manager, Carl J. Zaiser.

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WORD has been received from the Federal Screw Works, Detroit, to the effect it is putting up a building of approximately 25,000 square feet, at Martin avenue and the Michigan Central railroad tracks. The building will be two stories, with frontage of 100 feet on Martin avenue, and extend back about 160 feet. It will be partly of reinforced concrete, steel and mill construction. The front will be of texture face brick in several shades with cut stone trimmings. All the latest ideas in factory construction will be embodied in the building. The company is planning to add considerable new equipment later, but at present is not in a position to state conclusively just what it will need, or how extensive its purchases will be. D. S. Diamond is secretary and treasurer.

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THE Standard Culvert & Steel Barrel Co., Hobart building, San Francisco, recently was incorporated to engage in the manufacture of steel barrels, drums, tanks, corrugated iron culverts, metal flume and other sheet steel products. It is capitalized at $500,000. D. B. Fuller, formerly vice president of the American National Bank, is president of the company; William C. Irvin, vice president; P. J. Batkin, secretary and C. K. Doak, treasurer. The company plans a factory which will be located in Oakland and construction of which will be started in the near future. One of the containers upon which this company will specialize, is a patented steel barrel which can be knocked down and nested for shipment so that ten empty barrels can be shipped in the space occupied by one filled barrel. A large volume of business is assured as the local demand for barrels amounts to approximately $10,000,000 annually. In addition many thousands of barrels are used in the export trade from the Orient to carry cocoanut oil, soy bean, peanut and other vegetable oils.

# Tool Prices Decline in January

## Reductions, Although Not Followed by All Machine Tool Makers, Indicate Trend of Market Is Toward Lower Quotation Levels—Revisions Show Range from 10 to 40 Per Cent—Business Continued Dull

PRICE reductions marked the machine tool and equipment market in January. Starting with the first week of the new year, some manufacturers in practically all machine tool manufacturing centers, announced reductions which ranged all the way from 10 per cent to 40 per cent. Though the individual readjustments have been numerous, tool manufacturers in the main have held to their old prices and only a small fraction of the total list of plants is included among those which have issued new schedules. The price cutting movement started in New England, when one manufacturer issued a schedule revising his equipment prices approximately 40 per cent. Several other manufacturers in the district immediately lowered their quotations, although their cuts were not so large. Before many days, similar action was being taken at least on a small scale by manufacturers in practically every district of the country.

*Lower Prices Fail to Revive Business*

IT HAD been expected by many manufacturers that lower prices would result in bringing out a number of new orders, but this has not been the case. Little new business has been stimulated by the cut and by the end of the month the reduction movement was tapering off. Business remained dull during the month. Few sales were made, and these were small and practically unimportant as market factors. The one bright light of the market was the increasing number of inquiries received in practically all districts. These inquiries in the main were for single machines. Tool dealers and manufacturers viewed them only as preliminary to future business, and it was not expected any immediate sales would be made.

*Resale Equipment Was a Factor*

DURING the first part of the month resale equipment continued a big factor in the eastern market. This equipment, which appeared in December, continued to be sold at considerably lower quotations than those asked for new machines. Many prospective buyers grasped the opportunity to fill their needs with used machinery, at low prices, and as a result sales of new tools suffered. Despite this fact some new equipment was sold, but these transactions largely were confined to single machines. In the New England district, actual sales were few. An increase in the number of inquiries, however, was noted. In the Pittsburgh district business remained dull. Several new small inquiries came out, principally confined to single machines. In Cleveland territory some new business was done in a small way. Sales were confined to single tools and in most cases these consisted of used equipment.

Some new inquiries were current. In the Chicago district little trading was done. Though not fully authorized by manufacturers, some dealers continued the practice of shading prices, when an advantageous sale could be made.

*Special Machinery in Demand*

AS A general rule the demand was greatest for special machinery. One large eastern company has turned its shop over completely to the manufacture of such equipment and it is known that quite a number of others have done so. The demand for such tools is due to the fact users are endeavoring to reduce the cost of labor by substituting machines for men. The larger buyers of tools, which include the railroads and the automotive industry, remained inactive during the month.

*Sales Were Few and Small*

SALES reported during the month which were of extra interest, included the reported closing of the Baldwin Locomotive Works on several hundred thousand dollars worth of tools, in the Philadelphia market. In connection with this business, the Baldwin company purchased $20,000 in electric control equipment from the Electric Controller & Mfg. Co., Cleveland. The Waukesha Motor Co., Waukesha, Wis., bought a number of used tools, while a northern Ohio manufacturer is said to have purchased six single spindle drilling machines. The Bryant Electric Co., Bridgeport, Conn., bought several tools and the B. F. Goodrich Rubber Co. is said to have placed an order in the Philadelphia district.

*Inquiries Were On The Increase*

DESPITE the fact machine tool sales were at a minimum new inquiries included one from the Otis Elevator Co., New York, for 20 miscellaneous tools for its Chicago plant. Some railroad business was expected to come out including an inquiry for seven machines by the Delaware & Lackawanna railroad. It also is expected machines and equipment will be called for a machine shop at the Cedar Hill yard of the New York, New Haven & Hartford railroad, contract for which was let during the month. An East Liverpool, O., interest inquired for several small tools, while the Aykroyd Iron Works, Worcester, Mass., was understood to be in the market for equipment, including punches, shears, etc. Another prospective purchaser was the Zang-Lescher Co., Pittsburgh.

*Locomotive Crane Prices Reduced*

THE crane market during the month was featured by price reductions by two locomotive crane builders, which approximated 10 and 15 per cent. These reductions brought the price of such equipment to approximately 30 per cent under the peak level recorded during the war. Although overhead crane builders have made no formal announcement of cuts in prices, the market has settled, and it is known some rather drastic reductions were made on some particular jobs. Sales of cranes made during the month were few. They included the purchase of four 5-ton electric overhead cranes and four hoists by Dwight P. Robinson Co., New York. The Utica Heater Co., Utica, N. Y., purchased four hoists. Handpower cranes were purchased by the West Virginia Paper & Pulp Co., New York, and two grab bucket cranes by the Semet-Solvay Co., Syracuse, N. Y. H. P. Converse & Co., Springfield, Mass., bought a 35-ton locomotive crane.

Crane inquiries were received from Dkura & Co., New York, for export and Takata & Co., New York for the same purchaser, said to be for a Japanese naval arsenal. The Parklap Construction Co., New York, was mentioned as a prospective buyer, as was the Batavia Car Co., Batavia, N. Y., and a Niagara Falls, N. Y., interest. As a rule crane business was dull.

# Tool Buyers Still Holding Off

### Machinery Market Is Lifeless as Purchasers Indicate They Will Hold Off Until Prices Are Lower—Some Reductions Are Made but Quotations Hold Generally—Fair Crane Business Is Reported

NO OUTSTANDING features in the machine tool and equipment market have developed during the past week. Dealers and manufacturers in all sections continue to report business at a minimum. Inquiries have shown a noticeable picking up but sales continue to be few and far between and as has been the rule these rarely consist of more than one machine. It is interesting to note that prices, which for some time past have shown a tendency to fall to a lower level, have steadied somewhat, although here and there reports are received of further reductions. One of the latest manufacturers to reduce prices is a northern Ohio maker of straightening presses. This approximates 20 per cent. In the New England district, a maker of grinding wheels, etc., has put into effect reductions ranging from 10 to 15 per cent on grinding wheels, and of about 15 per cent on grinding machines.

Wages continue to be cut in all sections of the country, and labor is plentiful. The automotive industry, which of late has been reported getting ready to resume production, is still "getting ready," insofar as it being a factor as a tool buyer. The same can be said of the railroads.

In the New England district dullness continues to be reported, but prices are holding. Some fairly large sales were made here in the week. In the New York district, quiet conditions prevail. No buying of consequence is reported and the market has developed practically into a bidders' market. It is known that some dealers in order to move equipment have offered concessions in some cases.

Steel corporation subsidiaries including the American Sheet & Tin Plate Co., have inquired for a number of tools, as have a number of others, including, the Jones & Laughlin Steel Co. Considerable business has been done, dealers reporting fairly large sales. Some railroad business has developed in the Pittsburgh district, the Pennsylvania railroad having put out a small list, which later was withdrawn. The Pittsburgh & Lake Erie railroad inquired for several shapers. In the Cleveland market business continues at a minimum. Sales are few and these consist principally of used machinery. The Chicago district also is dull, apparently due to the avowed intention of tool users to stay out of the market until prices are lower. Buying consists principally of single machines.

Little activity is to be noted in the crane market. Orders during the past week included one from the Cuba Cane Sugar Corp., New York, for a 25-ton electric overhead crane and a 10-ton overhead crane. Stone & Webster, Boston, placed an order for a 40-ton handpower crane. The Foundation Co., New York, is among those issuing inquiries it having asqed for three electric overhead cranes to be installed in a power plant at Nagara Falls, N. Y. At Pittsburgh, dealers report a slight improvement. The J. & J. B. Milholland Co., Pittsburgh, inquired for cranes.

# Eastern Tool Dealers Offer Price Concessions

NEW YORK, Feb. 1.—Machine tool sellers in this district report the past week as being as quiet as any time since the dullness set in several months ago. There has been no buying of consequence, and the slight improvement noted recently is no longer in evidence. As a result of the continued inactivity, the market now is practically a bidders' market. There are some manufacturers of machinery who are maintaining prices rigidly, but, in the main, these interests, along with sellers of machine tools generally, are offering concessions where deemed necessary regardless of price lists. As far as price lists are concerned, however, there have been no revisions reported during the past week on the general run of standard tools.

The report of recent large buying by the Baldwin Locomotive Works, Philadelphia, cannot be verified, although this interest has been issuing small lists for the past two months or so. These inquiries, however, have not resulted in any material buying and, for the most part have been issued simply for estimating purposes in connection with proposed maintenance facilities in foreign countries where Baldwin locomotives have recently or are likely to be sold. In any event, a fair portion of the machines listed will never be purchased, it is said.

Outstanding among overhead crane orders is that of the Cuba Cane Sugar Corp., 123 Front street, New York, involving one 25-ton electric crane, with 56-foot span, and one 10-ton, with 37-foot span. This business went to the Niles-Bement-Pond Co., 120 Broadway. Stone & Webster, Boston, placed a 40-ton handpower crane for installation in a power plant to be erected by the American Sugar Refining Co. at Baltimore, to the Whiting Corp., Harvey, Ill.

A couple of inquiries have been issued recently for estimating purposes. One is that of the Foundation Co., 120 Liberty street, which is figuring on a contract for what is said to be a hydro-electric power plant at Niagara Falls, N. Y. The list comprises three electric overhead cranes, including a 300-ton crane, with 67-foot span. The other is that of Thomas E. Murray, Duane street, involving two hammerhead cranes of 5½ yards capacity for installation at the Hellgate station of the United Electric Light & Power Co. Clark, MacMullen & Riley, 101 Park avenue, who recently asked for preliminary figures on a 15-ton

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electric overhead crane for a power plant have withdrawn, the project having been temporarily postponed. The Bensel-Last Co., construction engineers, Trenton, N. J., is inquiring for a 2-ton handpower crane for the *Trenton Times*. The 35-ton locomotive crane purchased recently by the American Steel & Wire Co., Worcester, Mass., was awarded to the Browning Co., Cleveland.

*New England Prices Firmer*

BOSTON, Feb. 1.—While many Boston dealers report continued dullness in the machine tool market there are signs of improvement in some quarters. Sheet metal manufacturers have found an increase in orders which warrants the purchase of additional tools and scattered users throughout Massachusetts have been in the Boston market during the week for individual tools. In most cases this business was placed through necessity and was for the minimum amount of equipment to enable manufacturers to operate. It is evident that nearly all users are awaiting for lower prices. One dealer reports an average of four or five calls a day asking if prices have been reduced. New England manufacturers generally have firmly maintained prices prevailing in 1920. Even used machinery is changing hands at relatively high prices, thus a Kempsmith No. 3 used milling machine sold during the week at $1200. One of the largest Boston dealers reports sales during the week of 12 presses, and of approximately half a dozen individual tools including lathes, shapers, and a planer. Inquiry is improving in the number of individual requests but large lists seem to have been withdrawn. The low ebb in the industrial lull in New England has very evidently been passed and this should mean a gradual return of machine tool trading. The situation briefly is one of waiting for something to happen.

The Norton Co., Worcester, Mass., is to make a reduction in the prices of its products. Grinding wheels will be reduced in varying percentages, ranging from 10 to 15 per cent, while in grinding machines the cut will average about 15 per cent. The company has reduced wages from 5 to 20 per cent, in addition to curtailing its operating hours.

*Tool Business Shows Improvement*

PITTSBURGH, Feb. 1.—Considerable improvement has been noted in the machine tool market in this district in the past week. Inquiries are more numerous and sales have been more frequent. Some of the new business originates with the United States Steel Corp. The Carnegie Steel Co. wants a pipe machine and has inquired for five or six tools for the Edgar Thomson Works, Braddock, Pa. The American Sheet & Tin Plate Co. wants four motor-driven machine tools as follows: One each, grinder, lathe, drill press and a 24-inch shaper. Several of the independent steel companies have issued inquiries, one of the largest coming from the Jones & Laughlin Steel Co. Many users do not believe prices have reached bottom. With few exceptions prices remain firm, but it is understood that in one or two cases concessions would be made if orders were in immediate prospect. Most inquiries in this territory are from the East. A particularly large demand for planers is noted. One selling interest states it is working on approximately $125,000 of planers. The McCoy-Brandt Machinery Co. reports considerable new inquiry and several sales involving two or three shapers, lathes, etc. Somers, Fitler & Todd report sales involving pipe machines, drill presses and grinders, and new inquiries for similar equipment. A mine shop in the Connellsville district is asking for some equipment.

Some railroad activity is developing although it is not sizable. The Pennsylvania railroad put out a list of several tools for Mingo Junction, which later was withdrawn. The Pittsburgh & Lake Erie railroad asked for several shapers and other equipment but these purchases will be made from used machinery offerings. The used machinery business is experiencing better demand than in several months past. The Reliance Machinery Sales Co., Pittsburgh, reports sales as follows: No. 3 Bliss reamers to the Walters Mfg. Co., Pittsburgh, and the Sheet Metal Specialty Co., Follansbee, W. Va.; a 14-inch and a 40 x 62-foot lathe to Walter Gruss, dies and stampings, Pittsburgh, and the Lombard Iron Works, Augusta, Ga.; a 14-inch lathe and a 16-inch shaper to the School of Mines, University of Pittsburgh; Clare Coke Co., Greensburg, Pa., 24-inch lathe; Pennsylvania Brake Beam Co., Danville, Pa. 1½-inch bolt cutter; Fawcus Machine Co., Pittsburgh, two 20-inch lathes; and the Lee C. Moore Co., Pittsburgh, one drill press. The Sterling Steel Foundry Co., Braddock, Pa., suffered a loss in a recent fire and probably will purchase new foundry equipment as well as machine tools, including sprue cutters, etc. The Wickman Screw Works is in the market for a used oil separator.

Crane dealers report a slight improvement in demand and one of the newest inquiries comprises five standard cranes, 5 to 20-ton capacity, issued by the J. & J. B. Milholland Co., 714 Fifth avenue, Pittsburgh. One selling interest reports that if 10 per cent of the projects on which they have figured recently and which are held in abeyance, were closed, it would represent a sizable aggregate. One of the largest of these is the International Nickel Co. list of cranes for Huntington, W. Va. which calls for one 30-ton crane with 10-ton auxiliary, 80-foot span, 30-foot lift; one 10-ton crane with 80-foot span, 40-foot lift; one each 5 and 10-ton crane with 80-foot spans and 30-foot lifts; two 5-ton cranes with 60-foot span, 30-foot lift and one 5-ton crane with 40-foot span, 20-foot lift, revised bids on which were taken Jan. 27. The only crane award reported this week is one to the Pittsburgh Crane & Equipment Co., for a 10-ton, 3-motor machine shop crane by the Austin Co., Cleveland, for the New River Coal Co., Macdonald, W. Va.

*Users Wait for Lower Prices*

CHICAGO, Feb. 1.—Deadlock between manufacturers and users of machine tools continues. Prices for the most part are unchanged and the general attitude of buyers is to defer buying to a later date. Railroad purchasing departments are frank in attributing this attitude to prices. Successive bids are asked by these departments with the avowed intention of waiting until figures are to their liking. Prices are holding firm in most instances, though one manufacturer of grinding equipment and abrasives is understood to have reduced quotations 15 per cent. Some small buying is being done in single tools, from widely distributed buyers. One dealer recently sold four machines, singly and each to a different class of user. Some dealers have found the past few days more active than formerly, but the total of sales is so small as not to be sufficient to be regarded seriously. Salesrooms are becoming crowded with equipment shipped from manufacturers, which sellers are unable to move. The present congestion is marked. Holdups on the part of buyers are preventing deliveries of machines bought some time ago.

*Canadian Demand Is Still Low*

TORONTO, Ont., Feb. 1.—The demand for machinery and machine tools continues small. However while not much buying is being done, the general tone of the market indicates improvement. One of the larger automobile companies which recently re-opened its plant is now beginning to ask for equipment. Large lists continue ab-

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sent from the market but there are a number of inquiries out for single tools and for light equipment. Despite the prevailing quiet tone of the market dealers still look for a brisk demand before the end of the winter. Some buyers are still holding off because of present prices. The price asked for new machinery and tools is bringing out a better demand for re-built tools and a number of these have been disposed of during the past week. In the Montreal market there are rumors of price cutting on small tools.

The Utilities commissioners, London, Ont., are asking for quotations on equipment for a filtration plant to remove iron from water. The Concrete Pipe & Products Co., Hamilton, Ont., is in the market for medium sized smooth face crushing rolls. The McIlroy Belting & Hose Co., Hammond Ind., has a building at Kingsville, Ont., in which it will install machinery and equipment to cost $20,000. The Lanark Engineering Co., New Glasgow, N. S., will open a new mine and will install electric haulage equipment, electric compressors and pumps. C. A. Mitchell is engineer. E. Leonard & Sons, York street, London, Ont., manufacturers of metal products, castings, etc., have had plans prepared and will receive bids for a plant addition to cost $35,000. The Garden City Press, Ste. Anne de Bellevue, Que., will build a small paper mill. The Laurentide Pulp & Paper Co., Ltd., Grande Mere, Que., will call for bids about April 7 for an addition to a finishing room to cost $40,000.

The St. Maurice Paper Co., Ltd., Cap de la Madeleine, Que., has awarded contracts to the George A. Fuller Construction Co., Ltd., 285 Beaver Hall Hill, Montreal, Que., for the construction of the following: Machine shop; pattern making room; store room; wrapping room; extension to motor room costing $200,000; pump house to cost $25,000; block storage reservoir costing $100,000; extensions to wet machine room, $100,000; and electric work shop, $10,000. The Wayagamack Pulp & Paper Co., Ltd., Three Rivers, Que., has awarded a contract for new digesters required for an extension to a paper mill costing $3,000,000 to the McKinnon Steel Co., Drummond road, Sherbrooke, Que. The City of Grand Mere, Que., has awarded a contract to Fraser Brill & Co., Montreal, Que., for a pumping house to cost $30,000.

### *Tool Sales at a Minimum*

CLEVELAND, Feb. 1.—Demand for machine tools and equipment continues to be at a minimum in this district. On the other hand, although sales are not many, inquiries continue to increase, and indications are for a more active market shortly. In most instances trading is being done in used equipment, so far as known, little new equipment having been moved in the last week. Dealers generally state this condition to a great extent is due to the prices being asked for new tools and which manufacturers say they will continue to ask.

Price cutting continues to be heard of but as a general rule the downward price movement has come to a halt. During the week a northern Ohio manufacturer of straightening presses announced a reduction in the price of its equipment, which approximates 20 per cent. Aside from this maker, so far as learned, other manufacturers in this district are holding to their old prices, and indications are that they intend to hold to them for some time. Despite this, some dealers are selling equipment at lower than manufacturers' quotations, this shading in a number of instances resulting in fairly good sales it has been reported.

No large inquiry is current in the district, although it is understood, the American Steel & Wire Co., Cleveland, and a crane manufacturer at Bucyrus, O., are preparing to revive their inquiries for tools, which were put out several months ago. The American Steel & Wire Co. inquiry is said to involve 21 miscellaneous tools, while the inquiry of the crane maker embraces miscellaneous tools and equipment. It is understood the Ohio Crane Co., Bucyrus, O., has engaged the Bellefontaine Bridge & Steel Co. to erect a new shop building, as well as a pattern shop and office building.

General business activity in this district remains practically at the stage it has been since shortly before the holidays. Little increased activity has been noted, although much has been indirectly reported. Reported acitivity of the automotive industry in this district is to a great extent overestimated, although various companies are giving indications of reopening their plants and doing business on a more normal basis than they have been for the past few months. The same situation as rules the automotive industry in Cleveland, applies to the plants in the Detroit district. The railroads continue out of the market for equipment, although it is understood that here and there single machine tool purchases have been made but no purchase of consequence was included.

During the past week a Cleveland dealer disposed of two shapers to a Philadelphia purchaser, also a 41-inch King boring mill to the Fate-Root-Heath Co., a Warner & Swasey 3a-turret lathe to the Horsbaugh & Scott Co., Cleveland. Two other Cleveland companies bought from the same dealer a quantity of equipment, one taking a number of milling machines, and the other miscellaneous equipment. Another Cleveland dealer disposed of a lot of eight miscellaneous machines to a Cincinnati purchaser. A Buffalo purchaser also bought several tools from the same interest. In addition, it is understood that the Marion Fence Machinery Co., Marion, Ind., recently incorporated, during the week purchased a quantity of machinery and general equipment in the Cincinnati district.

Athough inquiries have been on the increase, few have been of size, most of them being for single tools. No large purchaser, so far as known is in the market at this time. Of interest to the trade is the recent purchase of a factory site adjoining its plant, made by the Electric Steel & Forge Co., Cleveland. It is understood this company plans to erect a rolling mill which will greatly increase its present plant capacity. Other items of interest to the trade involve the following incorporations: The Cord Tire Machine Co., Akron, O., which is capitalized at $1000; the American Turret Tool Co., Cleveland, which has an initial capitalization of $10,000; the Marion Metallic Vault Co., Marion, O., which was recently chartered with $75,000 capital and a number of others. The Advance Foundry Co., Dayton, O., is reported planning to erect a foundry, and the Western Reserve Motor Car So., Warren, O., which was recently organized with $3,000,000 capital stock, by R. K. Johnson and others, has pur-$1000; the American Turret Tool Co., Cleveland, which has the building of automobiles.

To some extent orders for foundry equipment have been on the increase in this district. One large northern Ohio manufacturing company in this line, reports during the past few days it has received a number of orders. This company states that in most instances the orders were from established foundry companies. It also states it believes the orders to some extent were due to the lower prices which now obtain for such equipment. A number of those buying equipment now, are foundries engaged in making castiron pipe, etc. This manufacturing interest has lowered its equipment prices approximately from 15 to 20 per cent in the last three months.

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# Along Middle Atlantic Seaboard

ALMOND, N. Y.—The Western New York Farm Light & Power Co. recently was incorporated with $6000 capital stock, by G. A. and H. A. Guenther and L. B. Stewart.

BROOKLYN, N. Y.—The Empire Tinware Co., 33 South Fifth street, plans a 4-story plant addition, 27 x 98 feet, to cost about $90,000.

BROOKLYN, N. Y.—Joseph G. Emmett, 15 Van Sicklen court, plans a 1-story machine shop, 43 x 100 feet.

BROOKLYN, N. Y.—The Kenneweg Corp. has been incorporated with $50,000 capital stock, by W. C. Kenneweg, G. E. Biot and H. F. Ruge, 345 Twelfth street, to manufacture ventilators and ventilating equipment.

BUFFALO—The Iroquois Steel Co. has been incorporated with $100,000 capital stock, by M. Kimball, M. T. Sullivan and C. A. Foltz.

BUFFALO—The Chemical Heat Corp. of Buffalo has been incorporated with $30,000 capital stock, by G. C. and W. M. Spaulding and H. H. Hollenbeck.

BUFFALO—The Instantaneous Electric Heater Corp., Root building, recently organized, has taken options on 10 acres as a site for its proposed plant. Plans are now being prepared for the initial buildings.

DUNKIRK, N. Y.—The Romer Axe & Tool Co. recently was incorporated with $110,000 active capital stock, by J. T. Dillon, D. W. Lathrop and C. P. Burgess.

LANCASTER, N. Y.—The Depew & Lancaster Light, Power & Conduit Co. plans a power plant at Colden, N. Y. Ernest Feyler is president of the company.

NEW YORK—The Consolidated Shipbuilding Co., Morris Heights, plans a 1-story power house.

NEW YORK—The Barber Asphalt Co. is having plans drawn for a power house, 2-stories, 75 x 118 feet.

NEW YORK—The Long Island Iron Works has been incorporated with $15,000 capital stock, by L. Turstzkin, H. Melchisky and J. Buchler, 663 East 165th street.

NEW YORK—The Westen Wheel Mfg. Co. recently was incorporated with $315,000 capital, by S. Ullman, E. W. and H. D. Salzer, 395 Fourth avenue.

NEW YORK—The Liberty Die & Button Mold Co. has been incorporated with $100,000 capital stock, by M. and D. Weiss and I. Weidhorn, Lynbrook, L. I.

NEW YORK—The Die & Tool Hospital recently was incorporated with $10,000 capital stock, by B. Sugar, D. Schneider and J. A. Landan, 1547 Minford place.

NEW YORK—The Oceanic Metal Spinning & Stamping Co. recently was incorporated with $10,000 capital stock, by K. and O. Cohen and B. Stinger, 525 Tinton avenue.

NEW YORK—The Metropolitan Iron Pipe & Nipple Works recently was incorporated with $10,000 capital stock, by S. and P. Luke and B. Leibowitz, 6 Forsyth street.

NEW YORK—The Mutual Phono Parts Corp. has been incorporated with $15,000 capital stock, by H. Segal, H. Stahl and N. Garfinkel, 319 Lincoln place, Brooklyn, N. Y.

NEW YORK—Edward C. Miller & Son, Inc., has been incorporated with $50,000 capital stock, by R. H. McIntyre, E. S. Lewis and W. E. Schiel, 258 Broadway, to manufacture metal products.

NEW YORK—The D. B. Pershall & Son, Inc., has been incorporated with $25,000 capital stock, by H. R., D. B. and C. Pershall, 861 President street, to manufacture hardware and other metal products.

NEW YORK—The Tiphany Phonetic Corp. has been incorporated with $4,000,000 capital stock to manufacture talking machines, etc., by W. W. Staub, A. B. Jentes and C. B. Bash, 30 Church street.

NEW YORK—The Four Wheel Hydraulic Brake Co. of New York has been incorporated with $5000 capital stock, by M. M. Maze, J. H. Naughton and I. Margolis, 2650 Broadway.

NEW YORK—Barnes & Fisher, ornamental iron work, recently were incorporated with $10,000 capital stock, by F. A. Barnes, F. Fisher, and others, 496 East 189th street.

NEW YORK—The Pyramid Iron Products Corp. recently was incorporated with $15,000 capital stock, by F. Kingsland, G. W. Elder Jr. and C. S. Ironmonger, 275 Clinton avenue, Brooklyn, N. Y.

NEW YORK—The Gamsu Sheet Metal Works has been incorporated with $5000 capital stock, by P. Kleinstein, H. D. and G. D. Gamsu, 508 East Eighty-first street.

NEW YORK—The O-B Electric Vehicles has been incorporated with $500,000 capital stock, by W. J. Begold, W. H. Bloom and T. F. Baumann, 307 East Ninetieth street.

NEW YORK—The Thornton Transformer Co. recently was incorporated with $50,000 capital stock, by H. C. Smith, W. Brewster and G. A. Thornton, 30 Church street.

NEW YORK—The Steen-Bleyer Chemical Co. has been incorporated with $50,000 capital stock, by F. M. Lambert, S. E. Bleyer and A. G. Steen, 30 Stratford road.

NEW YORK—The Eli Chemical Products Co. recently was incorporated with $100,000 capital stock, by T. S. Fredericks, M. Pavlou and T. Litwak, 421 East 161st street.

NEW YORK—The Hanover Utilities Corp. has been incorporated to manufacture machinery, etc., with $100,-

## Water Power Projects Increase

EIGHT applications for permits or licenses under the federal water power act, were filed with the Federal Power Commission, Washington, during the week ended Jan. 22. These applications make a total of 160 received up to date. The water power commission consists of the secretary of war, chairman; the secretary of the interior and the secretary of agriculture. The executive secretary, to whom all correspondence should be forwarded, is O. C. Merrill. The applications received during the week follow:

Power development at Lake Virginia and in Mill Creek, near Wrangel, Alaska, in the Tongass national forest. Proposed by J. G. Galvin, care Maurice D. Leehey, 620 Alaska building, Seattle, Wash. This is project No. 153.

Dam 50 to 90 feet high in Boise river, Elmore county, Idaho, backing the water up the river for 3 miles; power house to be located at the dam, about 3000 horsepower. Proposed by the Elmore Copper Co., care of Wilkerson, Cassels, Potter & Gilbert, attorneys, the Rookery, Chicago. Project No. 154.

Five small diversion dams and 2½ miles of conduit to a power house on the headwaters of Snow creek, and 2-mile conduit to a second power house lower down the main stream, Riverside county, Cal. Proposed by the Southern Sierras Power Co., care W. L. Huber, First National Bank building, San Francisco. Project No. 155.

Two diversion dams, conduits and two power houses on Bear creek, the lower power house being located at the junction of Bear creek with Santa Ana river; a diversion dam and 1½-mile conduit to a power house on Santa Ana river; dam and storage reservoir below this power house, and diversion conduit leading to the above mentioned power house at the junction of Bear creek and Santa Ana river, San Bernardino county, Cal., about 12,750 horsepower. Proposed by C. E. Fairchild, 10 West Citrus avenue, Redlands, Cal. Project No. 156.

Dam 100 feet high at the outlet of a lake at the head of Tyee creek, 1½-mile tunnel to a power house on the shore of Bradfield canal, transmission line 18 miles to paper mill on Hunchback bay; second dam 60 feet high on Anan creek, power house located at the dam, and transmission line ½-mile to the above mentioned paper mill, Alaska, about 14,000 horsepower. Proposed by the Alaska Development & Mineral Co., care Burdett, Thompson & Law, 4 Ouray building, Washington. Project No. 157.

Dam 260 feet high creating reservoir 25 miles long on the Green river, about 27 miles above, the town of Green River, Utah. Power house to be located at the dam and to generate 8000 horsepower. Proposed by the Utah Light & Power Co., care M. O. Leighton, McLachlen building, Washington. Project No. 158.

Dam 75 feet high on the north fork of Payette river creating reservoir storing 2300 acre feet. Pipe line and tunnel to a power house on the south fork of the river, and second dam to be constructed at the head of the stairs on south fork creating a reservoir to store 1150 acre feet, and pipe line to the above mentioned power house, Idaho, about 12,000 horsepower. Proposed by the city of Boise, Idaho. Project No. 159.

Dam 4 feet high and 80 feet long, flume in Powder creek and pipe line 1½ miles to power house, generating about 500 horsepower, and transmission line 4 miles long to the town of Cordova, Alaska. Proposed by the Alaska Public Utilities, Cordova, Alaska. Project No. 160.

# The Literary Digest

(Title Reg. U.S. Pat. Off.)

WORLD-WIDE - TRADE - FACTS

## EUROPEAN IRON AND STEEL IN 1920

TWO YEARS AFTER THE WAR ENGLAND AND CONTINENTAL COUNTRIES, WITH THE EXCEPTION OF GERMANY AND RUSSIA, ARE REGAINING PREWAR CAPACITY—HAS INFLUENCE ON AMERICAN STEEL AND IRON INDUSTRY

By H. Cole Estep, European Manager of *The Iron Trade Review*

OWING to its vast capacity, the American iron and steel industry is peculiarly sensitive not only to conditions within our own country but to those in the outside world as well. For this reason, and also on account of the broad-gaged character of its leadership, the American iron and steel business is one of the most progressive of our great industrial enterprises. Num- ...e its units pioneers in the

TABLE I—PIG-IRON PRICES IN THE WORLD'S MARKETS
Reduced to Dollars per Gross Ton at Current Exchanges
Basic Iron

| | 1919 | | | | 1920 | | | |
|---|---|---|---|---|---|---|---|---|
| | Jan. 1 | Apr. 1 | July 1 | Oct. 1 | Jan. 1 | Apr. 1 | July 1 | Oct. 1 |
| United States Pittsburgh | $31.60 | $27.15 | $27.15 | $27.15 | $38.60 | $44.40 | $46.15 | $50.40 |
| Great Britain Middlesborough | 23.75 | 23.20 | 23.80 | 24.25 | 31.40 | 42.30 | 44.80 | 41.00 |
| Germany Düsseldorf | 23.70 | 25.10 | 24.60 | 30.00 | 30.30 | 37.60 | 43.60 | 35.00 |
| France Northeastern | ..... | ..... | ..... | ..... | ..... | 34.60 | 42.00 | 40.00 |
| Belgium | | | | | | 34.60 | 42.00 | 40.00 |

## 400 Newspapers Regularly Quote

# THE IRON TRADE REVIEW

CLEVELAND

**The international reputation and the World-wide circulation of THE IRON TRADE REVIEW is the result of year after year of unfailing Editorial accuracy and reliability.**

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## THE IRON TRADE REVIEW

*"The Most Widely Quoted Trade Paper In The World"*

000 capital stock, by P. G. Gillard, 63 Park Row, and others.

TOTTENVILLE, S. I. N. Y.—The Union Shipyards Corp. contemplates a plant for the repair and construction of tugs and other small craft. The company is reported to be in the market for a locomotive crane.

BRIDGEVILLE, PA.—The Flannery Bolt Co. plans a plant building, 1-story, 50 x 160 feet.

LANCASTER, PA.—The Champion Blower & Forge Co., manufacturer of draft equipment, plans to rebuild its 1-story assembling works, 60 x 145 feet, recently damaged by fire.

LOCK HAVEN, PA.—The Lock Haven Electric Light & Power Co. has started work on a power plant.

PHILADELPHIA—The Jump House Wrecking Co., Thirtieth street, plans a 1-story machine shop, 26 x 60 feet.

PHILADELPHIA—The General Grinding Wheel Co. has taken title to property comprising a 2-story factory building, and a 2-story power house. The lot is 140 x 148 feet.

PHILADELPHIA—The J. S. Thorn Co., Twentieth and Allegheny streets, manufacturer of architectural iron specialties, etc., has acquired a tract, 18 x 711 feet, for future extensions.

PHILLIPSBURG, PA.—The Nickel Fabricating Co., Inc., has been incorporated with $200,000 capital stock.

PITTSBURGH—The West Penn, Power Co. plans extensive water power development.

WILLIAMSTOWN, PA.—The Blanning Hardware Co. has been incorporated with $25,000 capital stock, by William H. Blanning, and others, to manufacture hardware and metal specialties.

BLOOMFIELD, N. J.—The Metal Crafts Co. has been incorporated with $100,000 capital stock, by A. P. Seidel, E. W. Poerner and Andrew Poerner.

EAST BOUND BROOK, N. J.—The Watson Bros. Machine Co. has been incorporated with $200,000 capital stock, by R. F. Watson, and others.

IRVINGTON, N. J.—The Superior Welding & Repair Co. recently was incorporated with $50,000 capital stock, by Carl Fix, 48 Wall street, Paul Schilling and Louis Bachstaetter, 61 Darcy street, to operate a machine construction and repair works.

MILLVILLE, N. J.—The Millville Light & Power Co. contemplates a power house addition.

NEWARK, N. J.—The Potter Mfg. Co. has been incorporated with $10,000 capital stock to manufacture specialties, etc., by H. Potter, A. Hogan, and others.

NEWARK, N. J.—The Ideal Electric Mfg. Co. has been incorporated with $50,000 capital stock, by August Harth, J. A. Harth and August Weiner Jr.

NEWARK, N. J.—The Universal Tobacco Machine Co. is installing equipment in its new plant here. The building is 2-stories, 100 x 200 feet.

NEWARK, N. J.—The Arnold-Hellmuth Mfg. Co., Brooklyn, N. Y., has rented for a term of years a part of a loft building on Emmet street, for the manufacture of metal parts.

NEWARK, N. J.—The Interstate Iron Works, 664 South Fifteenth street, has been organized to manufacture ornamental iron products, by B. Miller, 175 Morris avenue, and others.

TRENTON, N. J.—The Delaware River Quarry & Construction Co., 21 Bridge street, Lambertville, N. J., is reported planning a group of buildings, including a boiler house near here. B. A. Montgomery is president. The company will install equipment at a cost of $100,000.

WEEHAWKEN, N. J.—The New Jersey Can Corp. recently was incorporated with $100,000 capital stock, by H. W. Sprick, William Stubbmann and John Kashinsky.

WEST NEW YORK, N. J.—The Coin Device & Signal Co. is having plans drawn for a factory building, 1-story.

BALTIMORE—The Baltimore Mineral Co., Keyser building, has been incorporated with $150,000 capital stock, by J. W. Green, B. M. Williams and L. Ruth Ewell.

BALTIMORE—The United Gas & Electrical Engineering Co., 700 West Baltimore street, has been incorporated with $100,000 capital stock, by Phillip Raun, Solomon Berkowich, and others, to manufacture lamps, fixtures, etc.

CHARLOTTESVILLE, VA.—This city plans to make some improvements to its gas plant.

CLIFTON FORGE, VA.—The Whiteside Supply & Engineering Corp. has been incorporated with $25,000 capital stock, by J. W. Whiteside, and others.

LYNCHBURG, VA.—The Glamorgan Pipe & Foundry Co. is reported planning a foundry addition.

# New England States

BOSTON—The Worcester Tram Rail Co. has been incorporated by Earl E. Sabean, Daniel Worcester, Medford, Mass., and E. J. Worcester.

BOSTON—The Schumaker-Santry Co. recently was incorporated to manufacture power plant equipment, etc., by Joseph V. Santry, A. J. Santry, Brookline, Mass., and H. H. Leathers.

BOSTON—John J. Lauppe & Staff, Inc., has been incorporated to build machinery, etc., with $50,000 capital stock, by Jacob Wirth, John J. Lauppe and William H. C. Pillsbury, Brookline, Mass.

BOSTON—The Atlantic Screen & Wood Products Co. has been incorporated with $50,000 capital stock, by Frank J. Dewey, Brookline, Mass., Wallace Everson and Emil J. Johnson.

BOSTON—The American-Industrial Furnace Corp. has been incorporated to build machinery and appliances, with $90,000 capital stock, by Alfred Cast, Malden, Mass., K. A. Juthe, Newton, Mass., John R. Hammer and Harry O. Breaker, Winthrop, Mass.

BOSTON—The Bellamy Millwright & Machine Co. has been incorporated to build machinery, etc., with $40,000 capital stock, by Leon Bellamy, Newtonville, Mass., George T. Richards, Neponset, Mass., John L. Anderson, Somerville, Mass., and R. E. Fleming, Waltham, Mass.

EAST WALPOLE, MASS.—Bird & Son have let the contract for a 1-story, 145 x 200-foot plant addition to cost about $120,000.

LYNN, MASS.—The Stackpole Oil Burner Mfg. Co. recently was incorporated with $50,000 capital stock, by Fred C. Fessenden, Clyde James Stackpole and Jacob Ogan, and others.

NORTHAMPTON, MASS.—The Hadley Scale Co. has been incorporated with $150,000 capital stock, by H. A. Hadley, Harry C. Humphrey and James E. McCullough.

NORTH ATTLEBORO, MASS.—Dominick & Haff, New York, silversmiths, are making arrangements to open a branch plant here.

QUINCY, MASS.—The Aetna Mfg. Co. has been incorporated with $40,000 capital stock, to carry on a general machine shop business, by E. A. Carlson, 95 Butler road, and others.

TAUNTON, MASS.—The Eaton Electric Furnace Co. has been incorporated with $95,000 capital stock, by Harry B. Eaton, C. Eaton and Edwin S. Hope.

TAUNTON, MASS.—The city has let the contract for the reconstruction of the municipal light plant to cost about $350,000.

WORCESTER, MASS.—The foundry of the H. P. Rob Power Co. recently was damaged by fire.

WORCESTER, MASS.—The M. & S. Mfg. Co. has been incorporated with $10,000 capital stock to manufacture castings, tools, pumps, etc., by Morris P. Strogoff, 5 Ivanhoe road, and others.

WORCESTER, MASS.—The Bilt-Rite Equipment Co. has been incorporated to make machine tools, etc., with $150,000 capital stock, by Charles L. Jernberg, Joseph T. Lord and G. Adolph Johnson.

WORCESTER, MASS.—The American Bridge Co., New York, has the contract for the structural steel for an addition to the South works of the American Steel & Wire Co.

NASHUA, N. H.—The Nashua Machine Co., Inc., has been incorporated with $40,000 capital stock, and will purchase a plant on Elm street.

PROVIDENCE, R. I.—The Narragansett Electric Lighting Co. will erect a 3-story boiler house addition.

PROVIDENCE, R. I.—The W. O. & M. W. Talcott, Inc., has been organized with $50,000 capital stock, to manufacture belt hooks, etc., by W. O. Talcott, and others.

WOONSOCKET, R. I.—The Remi Auto Mixer Co. recently was incorporated with $50,000 capital stock to manufacture gasoline saving devices, by R. J. Berard, 95 Ballou street, and others.

HARTFORD, CONN.—The Parker Stamp Works, Inc., has been incorporated with $25,000 capital stock, by H. L. Bitter, A. G. Russell and A. K. Smith.

NEW BRITAIN, CONN.—E. J. Danberg, 406 Stanley street, and others, plans a foundry building, 30 x 30 feet.

NEW LONDON, CONN.—Fire recently damaged the plant of the Vanadium Metals Co. No plans for reconstruction have as yet been anounced.

PORTLAND, CONN.—The Chatham Mfg. Co., a new $300,000 corporation, is installing machinery in a new plant and will begin operations about April 1.

# Central States Activity

AUGUSTA, WIS.—Articles of incorporation have been filed by the Augusta Electric Co., which has been organized with $50,000 capital stock, by R. W. Bowen, L. A. Van Shaver and L. J. Roberts.

MENASHA, WIS.—The U. S. Tractor & Machinery Co. has increased its capital stock from $500,000 to $800,000, the increase in capital to be used for expansion purposes.

OSHKOSH, WIS.—The Washkosh Mfg. Co., maker of domestic washing machines, plans a 1-story plant addition, 60 x 120 feet. J. E. Bolduc is president of the company.

SUPERIOR, WIS.—The Clarkson Coal & Dock Co. plans an office and machine shop, 2-stories, 55 x 160 feet, to cost about $45,000.

WATERTOWN, WIS.—The Luce Sugar Harvesting Machinery Co. plans to build a 1-story shop building, 80 x 100 feet, at an estimated cost of $75,000.

CHICAGO—The Mellicke Calculator Co., 350 North Clark street, has let a contract for a 2-story factory building, 60 x 125 feet, to cost about $50,000.

CHICAGO—The Argus Mfg. Co., metal specialties, has let a contract for a 1-story plant building, 40 x 125 feet, to cost about $50,000.

*Van Dorn Iron Works Co., Cleveland, Ohio*

WHEN you buy a wood block floor you make an extra initial investment in order to secure *floor permanence.*

The purpose of this advertisement is to call your attention to the fact that the life of such a floor depends entirely upon the character of the preservative oil used. Pure, heavy creosote oil is the only preservative that will outlast the wood. KREODONE Wood Block Floors are always treated with *pure*, unadulterated creosote oil.

**REPUBLIC CREOSOTING COMPANY**

***Indianapolis, Indiana***

**Plants: Indianapolis Minneapolis Mobile Seattle Norfolk**

BRANCHES

1015 Chamber of Commerce Bldg., Chicago
Erie County Bank Bldg., Buffalo
152 Bay Street, Toronto, Canada
638 Old South Bldg., Boston
Berkley Ward, Norfolk
922 Society for Savings Bldg., Cleveland
834 Real Estate Trust Bldg., Philadelphia
928 Plymouth Bldg., Minneapolis
445 Central Bldg., Seattle
Masonic Temple, Mobile
711 Hammond Bldg., Detroit
Foot of Chestnut Street, Milwaukee

CHICAGO—The Federal Steel Fixture Co., 4545 Homer avenue, has awarded a contract for a 1-story plant building, 50 x 220 feet.

CHICAGO—The Krasberg Piston Ring Co., 536 Lake Shore Drive, has been incorporated with $200,000 capital stock, by Herbert Bebb, R. Krasberg and Julius Keller Sr.

CHICAGO—The Grease Pump Mfg. Co., 1412 South Michigan avenue, has been incorporated with $50,000 capital, by S. L. O'Brien, H. G. Paro and H. E. Griddle.

CHICAGO—The Universal Lamp Co., 329 Plymouth court, has been incorporated with $150,000 capital stock, by R. H. O'Connor, William H. Gallagher and C. J. O'Connor, to manufacture electric lighting equipment, etc.

EAST ST. LOUIS, ILL.—The National Tank & Steel Co. is reported contemplating a foundry at a cost of $50,000.

EAST ST. LOUIS, ILL.—The Dependable Truck & Tractor Co. contemplates a plant building, 1-story, 100 x 250 feet.

ROBINSON, ILL.—Norris Bros., Inc., has been incorporated with $250,000 capital stock, by D. E., Frank H. and Paul E. Norris, to manufacture machinery, parts, etc.

WAUKEGAN, ILL.—The Triple Metals Corp., Terminal building, has been incorporated with $100,000 capital stock, by John K. Solleck, George D. Full and Joseph F. Hocking, to manufacture metal products.

ANDERSON, IND.—The Mfg. Equipment Co. has been incorporated with $10,000 capital stock, to manufacture machinery, etc., by F. T. Barber, W. H. Dunn, C. E. Williamson, N. M. McCullough and F. L. Atwood.

BEDFORD, IND.—The Bedford Tractor Co. is having plans drawn for a plant, 1-story, 80 x 100 feet.

FRANKFORT, IND.—Plans are being drawn for an addition to the plant of the Stewart Wire Wheel Co., to be 60 x 85 feet and cost about $70,000.

HAMMOND, IND.—The Taylor Tractor Oil Motors Co. has been organized with $150,000 capital stock, by J. L. Taylor, W. S. Barnes, C. S. Greene, A. C. Jones and D. C. Voreis.

INDIANAPOLIS—Work has been started on an addition to the plant of the Insley Mfg. Co. to cost about $8000.

INDIANAPOLIS—Work will be started shortly on a warehouse, 96 x 173 feet, for the Herman Lifchitz Foundry & Machine Works.

INDIANAPOLIS—A. Chevrolet is head of a company being organized here with a capital stock of $25,000, which will engage in the manufacture of automobile accessories, etc. Others interested include Gilbert Cox and Merle Mulligan.

RUSHVILLE, IND.—The Dill Foundry Co. recently was incorporated with $20,000 capital stock, by William Dill, H. G. Francis and G. J. Greisser.

TERRE HAUTE, IND.—The United States Road Machinery Co. recently was organized with $10,000 capital stock, to manufacture road machinery, etc., by N. D. Fisher, John M. Larsh and Bert Beasley.

AKRON, O.—The Cord Tire Machine Co. has been incorporated with $1000 capital stock, by B. M. Sanderson, C. W. Shearer, and others.

BELLEVUE, O.—The former plant of the Collier Motor Truck Co. has been purchased by a new company now being organized. It will be devoted to manufacturing.

CLEVELAND—The Premier Refining Co. plans a building at a cost of $75,000.

CLEVELAND—The American Turret Tool Co. recently was incorporated with $10,000 capital stock, by E. E. McCloud, E. M. Little, and others.

CLEVELAND—The Central Tractor Co. recently was incorporated with $5000 capital stock, by M. L. Thomsen, A. M. Snyder, and others.

CLEVELAND—The Progressive Electric & Engineering Co. has been incorporated with $100,000 capital stock, by H. Flesher, E. J. Flesher, M. L. Dilley, E. Horvath and H. Bolotin.

CLEVELAND—The Perfection Ratchet Wrench Co. has been incorporated with $30,000 capital stock, by B. F. Pollak, O. H. Meyer, E. G. Knerr, A. R. Meyer and J. A. Bommhardt.

EAST PALESTINE, O.—Additional capital stock to the extent of $25,000, is being sold to finance the purchase of equipment for the plant of the Efficiency Electric Co.

FREMONT, O.—The Carbon Tool & Die Co., which was recently incorporated, is reported planning a plant addition in the spring.

GIBSONBURG, O.—The Kelly Island Lime & Transport Co., Cleveland, has started work on a hydrating plant, 1-story, 100 x 100 feet, to cost about $75,000.

LIMA, O.—The Buckeye Castings Co. has increased its capital from $25,000 to $200,000, and plans a new foundry.

MARION, O.—The Marion Metallic Vault Co. recently was incorporated with $75,000 capital stock, by M. E. Cobb, J. T. Barger, J. H. Maish, B. F. Waples, C. B. Dilsaver and J. T. Barger.

MASSILLON, O.—The Excelsior Sand Co. has been incorporated with $25,000 capital stock, by A. J. Place, H. W. Loeffler, and others.

TOLEDO, O.—The Sozonian Steel Burial Vault Co. has been incorporated with $100,000 capital stock, by L. O. Brown, T. C. Brown, A. H. Brown, S. E. Brown and M. Klem.

ROUND BOTTOM, W. VA.—H. J. Booth, Pittsburgh, contemplates installing a producer gas plant.

WARWOOD, W. VA.—The Ackermann Mfg. Co. is reported planning plant extensions including a department for the manufacture of heavy steel stampings.

# In the South

LOUISVILLE, KY.—The Ovee Mfg. Co. has been incorporated with $100,000 capital stock to make automobiles, etc., by Vance Towler, C. K. Crawford and Emil Hammerschmidt.

NASHVILLE, TENN.—M. E. Brown, Huntington, W. Va., is reported planning a plant here for the manufacture of stoves.

CHARLOTTE, N. C.—The Southern Power Co. is reported planning a hydroelectric plant on the Catawba river.

DUNN, N. C.—This city contemplates rebuilding its power, light and water plant.

FAYETTEVILLE, N. C.—The Armond Motors Co., organized and incorporated recently with $100,000 capital, plans a plant here for the manufacture of automobiles. Definite announcement regarding the project has not been made. The incorporators are G. D. Gravely, Baltimore; B. D. Hume and N. L. Sasses, Fayetteville.

GREENSBORO, N. C.—Robertson, Strader & Co. plan to rebuild its machine shop recently damaged by fire.

NEWTON, N. C.—This city will install light and water systems.

SAVANNAH, GA.—The Savannah Machine & Boiler Works has been incorporated with $6500 capital stock, by James K. Calvitt, J. F. Dillon and M. V. Williamson.

TAMPA, FLA.—The Tampa Electric Co. plans to improve its street lighting system.

# Throughout the West

ALBERT LEA, MINN.—The Albert Lea Foundry Co. contemplates a foundry, 100 x 200 feet.

KANSAS CITY, MO.—The W. A. Laidlaw Wire Co. is reported planning to establish a baling wire plant here, moving its factory from Peoria, Ill.

ST. LOUIS—Gilbert & Barker, oil pumps and tanks, Springfield, Mass., have acquired a site here on which it is reported planning to establish a plant.

ST. LOUIS.—The Advance Electric Co. plans a factory building, 1-story, 50 x 100 feet, to cost about $15,000.

WARRENSBURG, MO.—This city plans to install a municipal light plant. F. L. Wilcox, St. Louis, is consulting engineer.

ARDMORE, OKLA.—The Service Tank Co. has been incorporated with $10,000 capital stock, by Frank and E. M. McPhail and L. A. Wirtaker.

ARGENTINE, KANS.—The Atchison, Topeka & Santa Fe railroad plans a machine shop and tool room addition, 1-story, 102 x 115 feet.

DALLAS, TEX.—The Winchester Texas Oil & Refining Co. will install a generating plant. W. L. MacKay is production engineer.

FT. WORTH, TEX.—The Peden Iron & Steel Co., according to report, shortly will start work on a plant here.

SOUTH BEND, TEX.—The Prairie Pipe Line Co. has leased a 40-acre site on which it will erect two $50,000 steel tanks and install a pumping station at a cost of $40,000.

# Business in Canada

HAMILTON, ONT.—The Globe Code-Standard Electric Co. has been incorporated to manufacture electric switches, etc., with $40,000 capital stock, by George W. Harper, Roy W. Baxter, Frederick J. Christmas, and others.

TORONTO, ONT.—The Automotive Products Co., Ltd., has been incorporated with $100,000 capital stock, by William E. Sommerville, L. A. Richard, Charles A. Thompson, and others.

TORONTO, ONT.—The Turnbull Elevator Co. has been incorporated to manufacture elevators, machinery, iron, steel, equipment, etc., and to acquire and take over the plant and business carried on by

(*Concluded on page* 386)

# Inspection

Every casting made in the Farrell-Cheek Steel Foundry is inspected—not once—but many times.

Each step in the making is checked up with the specifications by skilled inspectors working under the direct supervision of the foundry foreman himself.

This is just one example of the infinite personal care taken to assure you of faultless, dependable steel castings.

*These castings are worth your investigation.*

**Farrell-Cheek Steel Foundry Co.**

*"Makers of steel castings that are little better than the next best."*

Sandusky, Ohio
U. S. A.

# FARRELL-CHEEK

# Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

## Steel Works Scrap

### HEAVY MELTING STEEL

| | |
|---|---|
| Pittsburgh | $15.00 to 16.00 |
| Chicago | 15.50 to 16.50 |
| Eastern Pennsylvania | 14.00 to 15.00 |
| Cleveland | 14.00 to 14.50 |
| St. Louis | 14.50 to 15.00 |
| Buffalo | 15.00 to 16.50 |
| New York (dealers) | 9.50 to 10.00 |
| Birmingham | 15.00 to 16.00 |
| Cincinnati | 15.00 to 16.00 |
| Valleys | 15.00 to 15.50 |
| Boston (dealers) | 8.50 to 9.50 |
| Detroit | 15.00 to 16.00 |

### BUNDLED SHEETS

| | |
|---|---|
| Pittsburgh | $11.00 to 12.00 |
| Eastern Pennsylvania | 14.50 to 15.50 |
| Cleveland | 7.00 to 8.00 |
| Buffalo | 10 00 to 11.00 |
| Cincinnati | 9.00 to 10.50 |
| St. Louis | 7.00 to 7.50 |

### STEEL RAILS, SHORT

| | |
|---|---|
| Chicago | $17.00 to 17.50 |
| Boston (dealers) | 12.00 to 13.00 |
| Cleveland | 11.00 to 12 00 |
| St. Louis | 14.50 to 15.00 |
| Birmingham | 15.00 to 16.00 |
| Cincinnati | 18.00 to 1900. |
| Detroit | 21.00 |

### STOVE PLATE

| | |
|---|---|
| Pittsburgh | $16.00 to 17.00 |
| Chicago | 21.50 to 22.00 |
| Eastern Pennsylvania | 17.50 to 18.50 |
| Cleveland | 15.00 to 16.00 |
| Detroit | 20.00 to 21.00 |
| Birmingham | 17.00 to 18.00 |
| Buffalo | 17.00 to 18 00 |
| New York | 15.00 to 15.50 |
| St Louis | 17.25 to 17.75 |
| Cincinnati | 21.00 to 23.00 |
| Boston (consumers) | 15.00 to 16.00 |

### LOW PHOSPHORUS

| | |
|---|---|
| Pittsburgh, billet and bloom crops | $24.00 to 25.00 |
| Cincinnati | 23.00 to 24.00 |
| Buffalo | 22.00 to 23.00 |
| Eastern Pennsylvania | 25.00 |

### SHOVELING STEEL

| | |
|---|---|
| Chicago | $15.50 to 16.00 |
| St. Louis | 13.50 to 14.00 |

### KNUCKLES, COUPLERS AND SPRINGS

| | |
|---|---|
| Pittsburgh | $16.00 to 17.00 |
| Chicago | 17.50 to 18.00 |
| St. Louis | 15.00 to 15.50 |
| Eastern Pennsylvania | 18.00 to 30.00 |

### COMPRESSED SHEETS

| | |
|---|---|
| Pittsburgh | $13.00 to 14.00 |
| Chicago | 12.00 to 12.50 |
| Buffalo | 13.00 to 14.00 |

### FROGS, SWITCHES, GUARDS

| | |
|---|---|
| Chicago | 16.00 to 16.50 |
| St. Louis | 14.50 to 15.00 |
| Eastern Pennsylvania | 14.00 to 15.00 |

### BOILER PLATE, CUT

| | |
|---|---|
| Detroit | $12.00 to 12.50 |
| St. Louis | 9.00 to 9.50 |

### ANGLE BARS—STEEL

| | |
|---|---|
| Chicago | $16.50 to 17.00 |
| St. Louis | 15.00 to 15.50 |

## Iron Mill Scrap

### RAILROAD WROUGHT

| | |
|---|---|
| Pittsburgh, No. 1 | $16.00 to 17.00 |
| Pittsburgh, No. 2 | 15 00 to 16.00 |
| Chicago, No. 1 | 16.00 to 16.50 |
| Chicago, No. 2 | 16.00 to 16.50 |
| Eastern Pennsylvania No. 1 | 20.00 to 21.00 |
| Cleveland, No. 1 | 15.00 to 16.00 |
| St. Louis, No. 1 | 15.00 to 15.50 |
| St. Louis, No. 2 | 14.50 to 15.00 |
| Buffalo | 20.00 to 21.00 |
| Cincinnati | 16.00 to 17 00 |
| Birmingham, No. 1 | 16.00 to 18.00 |
| New York, No. 1 (dealers) | 15.50 to 16.00 |
| Boston (dealers) | 13.00 to 13.50 |

### WROUGHT PIPE

| | |
|---|---|
| Eastern Pennsylvania | $15.00 to 16.00 |
| Buffalo | 14.00 to 15.00 |
| New York (dealers) | 10.50 to 11.00 |
| Boston (dealers) | 10.50 to 11.00 |

### YARD WROUGHT

| | |
|---|---|
| Boston | 11.50 to 12.00 |
| Eastern Pennsylvania, No. 1 | 16.00 to 18.00 |

### CITY WROUGHT

| | |
|---|---|
| New York, long | $13.00 to 14.00 |

### BUSHELING

| | |
|---|---|
| Chicago, No. 1 | $16.00 to 16.50 |
| Chicago, No. 2 | 13.00 to 13.50 |
| Cleveland, No. 1 | 10.00 to 11.00 |
| Cleveland, No. 2 | 7.00 to 8.00 |
| St. Louis No. 1 | 15.00 to 15.50 |
| Buffalo, No. 1 | 13.00 to 14.00 |
| Cincinnati, No. 1 | 17.00 to 19.00 |
| Eastern Pennsylvania, No. 1 | 16.00 to 17.00 |
| Detroit No. 2 | 8.50 to 9.00 |

### MACHINE SHOP TURNINGS

| | |
|---|---|
| Pittsburgh | $10.00 to 11.00 |
| Chicago | 8.50 to 9.00 |
| Eastern Pennsylvania | 13.00 to 13.50 |
| Cleveland | 9.00 to 9.25 |
| Buffalo | 11.00 to 12.00 |
| New York (dealers) | 8.50 to 9.00 |
| St. Louis | 6.00 to 6.50 |
| Detroit | 6.00 |
| Cincinnati | 5.00 to 6.00 |
| Birmingham | 8.00 to 10.00 |
| Valleys | 8.00 to 8.25 |
| Boston (dealers) | 6.50 to 7.00 |

### CAST IRON BORINGS

| | |
|---|---|
| Pittsburgh | $12.00 to 13.00 |
| Chicago | 11.50 to 12.00 |
| Eastern Pennsylvania | 13.50 to 14.50 |
| Eastern Pennsylvania (chemical) | 15.00 to 16.00 |
| Cleveland | 12.00 to 13.00 |
| St. Louis | 9.50 to 10.00 |
| Detroit | 9.50 |
| Buffalo | 11.00 to 12.00 |
| New York (dealers' price) | 11.00 to 12.00 |
| Cincinnati | 8.50 to 9.00 |
| Birmingham | 8.00 to 10.00 |
| Valleys | 12.00 to 12.50 |
| Boston (dealers) | 7.50 to 8.00 |
| Boston (chemical) | 9.50 to 10.00 |

### MIXED BORINGS AND TURNINGS

(For blast furnace use)

| | |
|---|---|
| Eastern Pennsylvania | $12.00 to 13.00 |
| Boston (dealers) | 5.50 to 6.00 |
| Cleveland | 10.00 to 12.00 |

### IRON AXLES

| | |
|---|---|
| Pittsburgh | $36.00 to 37.00 |
| New York (dealers) | 33.00 to 34.00 |
| Chicago | 38.50 to 39.00 |
| Eastern Pennsylvania | 30.00 to 31.00 |
| Detroit | 34.00 |
| Cleveland | 28.00 to 29.00 |
| St. Louis | 32.00 to 32.50 |
| Buffalo | 30.00 |
| Cincinnati | 36.00 to 37.00 |
| Birmingham | 25.00 to 27.00 |

### IRON RAILS

| | |
|---|---|
| Chicago | 23.50 to 24.00 |
| Cleveland | 17.00 to 18.00 |
| St. Louis | 20.00 to 20.50 |
| Buffalo | 23.00 to 24.00 |
| Cincinnati | 26.00 to 27.00 |

### PIPES AND FLUES

| | |
|---|---|
| Chicago | $12.50 to 13.00 |
| Cleveland | 9.00 to 10.00 |
| Detroit | 11.50 to 12.00 |
| St. Louis | 11.50 to 12.00 |
| Cincinnati | 12.00 to 13.00 |

### GRATE BARS

| | |
|---|---|
| Chicago | $14.50 to 15.00 |
| Cleveland | 19.00 to 20.00 |
| Detroit | 17 00 to 18.00 |
| Buffalo | 15.00 to 16.00 |
| New York (dealers) | 15.50 to 16.00 |
| Eastern Pennsylvania | 18.00 to 19.00 |

### FORGE FLASHINGS

| | |
|---|---|
| Cleveland, large | $9.00 to 10.00 |
| Chicago, small | 11.50 to 12.00 |
| Cleveland, small | 8.00 to 9.00 |
| Boston (dealers) | 7.00 to 7.50 |

### FORGE SCRAP

| | |
|---|---|
| Chicago | $16.00 to 16.55 |
| Eastern Pennsylvania, No. 1 | 15 00 to 16.00 |
| Boston | 7.00 to 7.50 |

### ARCH BARS AND TRANSOMS

| | |
|---|---|
| Chicago | 25.00 to 25.50 |
| St. Louis | 21.00 to 21.50 |

### ANGLE BARS—IRON

| | |
|---|---|
| Chicago | 25.00 to 25.50 |
| St. Louis | 20.00 to 20.50 |

## Iron and Steel Works Scrap

### AXLE TURNINGS

| | |
|---|---|
| Pittsburgh | $14.00 to 15.00 |
| Eastern Pennsylvania | 14.00 to 16.00 |
| Boston (dealers) | 7.00 to 7.50 |
| St. Louis | 8.00 to 8.50 |
| Detroit | $12.00 |
| Cleveland | 13.50 to 14.00 |
| Buffalo | 14.50 to 15.50 |
| Chicago | 12.00 to 12.50 |

### STEEL CAR AXLES

| | |
|---|---|
| Pittsburgh | $22.00 to 23.00 |
| Eastern Pennsylvania | 25.00 to 26.00 |
| Cleveland | 25.00 to 26.00 |
| St. Louis | 20.50 to 21.00 |
| Buffalo | 30.00 |
| Chicago | 20.50 to 21.00 |
| New York (dealers) | 18.00 to 19.00 |
| Birmingham | 20.00 to 21.00 |
| Boston (dealers) | 17.50 to 18.00 |
| Detroit | 29.00 |

### SHAFTING

| | |
|---|---|
| Eastern Pennsylvania | $25.00 to 26.00 |
| St. Louis | 22.00 to 22.50 |
| New York (dealers) | 19.00 to 20.00 |
| Chicago | 27.00 to 27.50 |
| Boston (dealers) | 17.00 to 18.00 |

## Iron Foundry Scrap

### CAR WHEELS

| | |
|---|---|
| Pittsburgh, iron | $21 00 to 22.00 |
| Pittsburgh, steel | 16.00 to 17.00 |
| Chicago, iron | 22.50 to 23.00 |
| Eastern Pennsylvania iron | 25.00 to 26.00 |
| Cleveland, iron | 35.00 to 36.50 |
| St. Louis, iron | 21.00 to 21.50 |
| Buffalo, iron | 24.00 to 25.00 |
| Birmingham, iron | 21.00 to 22.00 |
| Birmingham, tram car | 20.00 to 21.00 |
| Boston (consumers) | 24.00 to 24.50 |
| Cincinnati | 23.00 to 24.00 |
| New York, iron | 21.00 to 22.00 |
| Detroit | 25.00 to 26.00 |

### NO. 1 CAST SCRAP

| | |
|---|---|
| Pittsburgh, cupola | $24.00 to 25.00 |
| Chicago, cupola | 21.00 to 21.50 |
| Eastern Pennsylvania, cupola | 23.50 to 24.50 |
| Cleveland, cupola | 21.00 to 22.00 |
| New York cupola (dealers) | 20.00 to 21.00 |
| Cincinnati, No. 1, machinery, cupola (net) | 21.00 to 22.00 |
| Detroit | 31 00 to 32.00 |
| Birmingham, cupola | 20.00 to 21.00 |
| St. Louis, railroad | 19.00 to 19.50 |
| St. Louis, agricultural | 18 50 to 19.00 |
| Buffalo | 20.00 to 21.00 |
| Boston (consumers) | 23.50 to 24.50 |
| Valleys | 21.00 to 22.00 |

### HEAVY CAST

| | |
|---|---|
| New York (dealers) | $19.50 to 20.50 |
| Buffalo | 19.00 to 20.00 |
| Pittsburgh | 19.00 to 20.00 |
| Cleveland | 14.00 to 14.50 |
| Boston (consumers) | 18.00 to 19.00 |

### MALLEABLE

| | |
|---|---|
| Pittsburgh, railroad | $15.00 to 16.00 |
| Chicago, railroad | 18.00 to 18.50 |
| Chicago, agricultural | 18.00 to 18.50 |
| Eastern Pennsylvania, railroad | 20.00 to 21.00 |
| Cleveland, railroad | 17.50 to 18.00 |
| Cleveland, agricultural | 14.00 to 15.00 |
| St. Louis, railroad | 13.50 to 14.00 |
| St. Louis, agricultural | 12.50 to 13.00 |
| Cincinnati, railroad | 14.00 to 16.00 |
| Cincinnati, agricultural | 15 00 to 17.00 |
| Boston, railroad | 15.00 to 16.00 |
| Buffalo | 16.00 to 17.00 |
| Detroit | 18.00 to 19.00 |

## Miscellaneous Scrap

### RE-ROLLING RAILS

5 feet and over

| | |
|---|---|
| Pittsburgh district | $16.00 to 17.00 |
| Chicago | 16.50 to 17.00 |
| Eastern Pennsylvania | 18.00 to 20.00 |
| Cleveland | 17.00 to 18.00 |
| St. Louis | 16.00 to 16.50 |
| Birmingham | 17.50 to 18.50 |
| Boston (dealers) | 12.50 to 13.00 |
| New York (dealers) | 15.00 to 16.00 |

### LOCOMOTIVE TIRES

| | |
|---|---|
| Chicago | $13.50 to 14.00 |
| St. Louis | 12.00 to 12.50 |

### LOW PHOSPHORUS PUNCHINGS

| | |
|---|---|
| Chicago | $18.00 to 18.50 |
| Eastern Pennsylvania | 20.00 to 21.00 |

## Millco Service

Millco Service has made many friends for us in the Iron and Steel Scrap field. We are now prepared to extend that service to also cover your requirements of

Ferro-Alloys

and Pig Iron - Fluor Spar - Fuel Oil - Babbitt - Aluminum. Drop us a line for attention of Mr W. K. Kenly.

"MILLCO SERVICE"

Ask us for prices on Manganese Scrap.

The James D. Miller Company
McCormick Bldg Chicago

# New Trade Publications

CUTTING MACHINE—The Metal Saw & Machine Co., Inc., Springfield, Mass., is circulating a leaflet in which a metal cutting machine is described and illustrated. This machine was designed to care for the cutting of metals up to 4 x 4 inches. Specifications are given.

MONORAIL HOIST—A small illustrated folder has been published by the Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., in which both floor controlled and cage operated electric monorail hoists are described and illustrated. The illustrations show the hoists in actual use, both at inside and outside work.

TORCHES—Large size, compressed air type foundry torches are described and illustrated in a folder recently published by the Mahr Mfg. Co., Minneapolis. These torches operate on compressed air at any pressure from 25 pounds to 120 pounds, according to the leaflet. Complete specifications are given.

CRANES—The Northern Engineering Works, Detroit, is circulating a 32-page illustrated booklet in which electric traveling cranes, bridge and gantry cranes, hand-power cranes, pillar and jib cranes and derricks, as well as electric hoists, air hoists, trolleys, air jacks, turntables, transfer tables, etc, are described and illustrated in detail.

LADLE DRIERS—The Mahr Mfg. Co., Minneapolis, is circulating a leaflet in which it describes and illustrates ladle driers for gray iron foundries. According to the folder, these driers will dry linings quickly, burning any grade of fuel oil, kerosene or distillate. They operate on compressed air at any pressure from 40 to 120 pounds per square inch. Complete specifications are given.

TOOL STEELS—The Vulcan Crucible Steel Co., Aliquippa, Pa., has published a 94-page illustrated booklet in which both tool and special steels are described. The booklet not only shows the various classes and types of steel manufactured, but also describes and illustrates part of the company's plant and equipment. A chapter is devoted to each type and class of steel. Complete specifications and other data are given.

PIPE HANDBOOK—A handbook of trade information and price list on wrought iron pipe and specialties, charcoal iron, boiler tubes, etc., has been issued by the Reading Iron Co., Reading, Pa. The list prices and standards are presented as revised and adopted Jan. 1, 1920. Tables of weights and measures, both American and foreign are given. The booklet is illustrated with reproductions of the various products manufactured by the company.

LADLE HEATERS—Oil fuel ladle heaters, for heating small ladles not exceeding 20 inches in diameter, are described and illustrated in a circular recently published by the Mahr Mfg. Co., Minneapolis. These heaters are equipped with burners which operate on the vacuum principle and do not require pressure on the oil tank, according to the folder. They operate on compressed air at any pressure from 30 pounds to 120 pounds and will burn fuel oil or kerosene. Specifications and other data are given.

FACTORY BUILDINGS—A 64-page illustrated booklet has been published by Frank D. Chase, Inc., Chicago, in which various plants which the organization has designed are illustrated. The plants shown are in iron and steel and metal products manufacturing industries and include the Samson Tractor Co., Janesville, Wis.; Peerless Foundry Co., Cincinnati; Conlon Electric Washer Co., Cicero, Ill.; Keith Railway Equipment Co., Hammond, Ind.; Cribben & Sexton Co., Chicago, and others.

STEEL EXTRAS—A booklet consolidating the various lists of extras over the base prices on iron and steel products recently has been compiled by the Steel Producers Export Corp., 120 Broadway, New York, especially for the information of the foreign buyer. In addition to the classified extras on various semifinished and finished mill products, the schedule of differentials on pig iron last recommended by the war industries board during the period of war regulation of prices is given. Other data and tables of weights and measures applicable to iron and steel products are included. Copies of the booklet are being distributed to the foreign clients of the company.

## Business in Canada

(*Concluded from page 382*)

the Turnbull Elevator Mfg. Co., 126 John street, Toronto. The incorporators are John H. Turnbull, Alexander R. Cochrane and others. The company has $1,000,000 capital stock.

TORONTO, ONT.—The Sapco Springs Co., Ltd., recently was incorporated with $100,000 capital stock, to manufacture automobile springs, appliances, machinery, etc., by Grant Cooper, L. Dillon, and others.

TORONTO, ONT.—The Monitor Stove Co., Ltd., recently was incorporated to manufacture stoves, heaters, etc., with $50,000 capital stock, by Joseph M. Bullen, Harold L. Steele, N. S. Robertson, and others.

TORONTO, ONT.—The Challenge Auto Accessories, Ltd., has been incorporated to manufacture automobile accessories, etc., with a capital stock of $250,000, by F. R. Marshall, G. H. Riches and others.

WALKERVILLE, ONT.—The Eclipse Machine Co., Ltd., has a license to carry on business in Ontario with $100,000 capital stock and has appointed John H. Coburn its representative.

WALKERVILLE, ONT.—The Canadian Production Tool Co., Ltd., has been incorporated to manufacture machinery, etc., with $40,000 capital stock, by H. E. Walker, Harry N. Reynolds, Treville O. Martin, and others.

WELLAND, ONT.—The Fulton Motors, Ltd., has been organized with $250,000 capital stock, and will establish a plant here for the manufacture of automotive products.

## Business Changes Announced Recently by the Trade

IN accordance with its decision to move its executive headquarters from Pittsburgh to New York, the Crucible Steel Co. of America has leased two entire floors in the old Manhattan hotel, Forty-second street and Madison Avenue, New York. The Crucible Steel Co.'s lease calls for the entire twelfth and thirteenth floors and it is understood the company will abandon its quarters at 2 Rector street, where its New York branch is now located.

* * *

Offices of the Empire Machinery Exchange Co., Cleveland, have been moved from 915 Citizens building, that city, to 517-519 Newman Stern building.

* * *

The Crankless Engine Co. has moved into its new plant at Fourteenth and Pearl streets, Jacksonville, Fla. The plant covers about 30,000 square feet.

* * *

Announcement has been made by the Combustion Engineering Corp., New York, of the opening of a branch office at Atlanta, Ga. The office, which is in charge of A. A. Hutchinson, is at 521 Candler building.

* * *

New Cleveland headquarters have been opened in Hotel Cleveland, that city, by the Forman-Bassett Co., agents for the General Fireproofing Co., Youngstown, O. F. W. Wagner is sales manager in charge of this office.

* * *

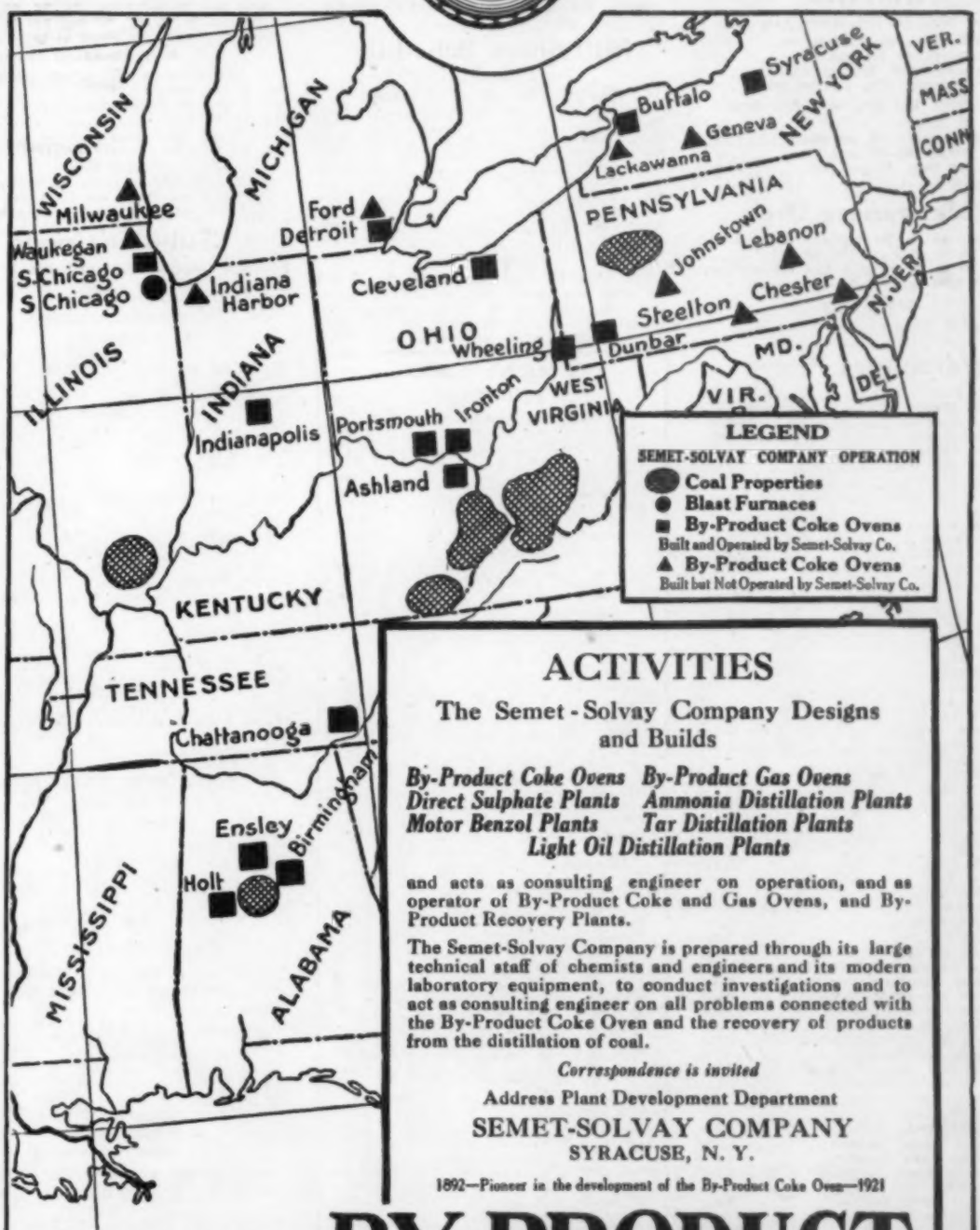
District sales offices have been opened at 88 Broad street, Boston, by the Ohio Electric & Controller Co., Cleveland. The offices are in charge of Arthur H. Abbott who has been appointed New England representative of the company.

* * *

Advices have been received to the effect that A. W. Heinle, who has been carrying on a consulting metal-rolling engineering business under the name of the Heinle Co., Crafton, Pittsburgh, is now carrying on the business under his own name.

* * *

As soon as headquarters in the Oliver building are arranged the American Foreign Steel Corp., New York, will remove its Pittsburgh branch from 997 Union Arcade to 522-3-4 Oliver building. S. W. Platt is Pittsburgh manager.




## ACTIVITIES

The Semet-Solvay Company Designs and Builds

*By-Product Coke Ovens* *By-Product Gas Ovens*
*Direct Sulphate Plants* *Ammonia Distillation Plants*
*Motor Benzol Plants* *Tar Distillation Plants*
*Light Oil Distillation Plants*

and acts as consulting engineer on operation, and as operator of By-Product Coke and Gas Ovens, and By-Product Recovery Plants.

The Semet-Solvay Company is prepared through its large technical staff of chemists and engineers and its modern laboratory equipment, to conduct investigations and to act as consulting engineer on all problems connected with the By-Product Coke Oven and the recovery of products from the distillation of coal.

*Correspondence is invited*

Address Plant Development Department

SEMET-SOLVAY COMPANY
SYRACUSE, N. Y.

1892—Pioneer in the development of the By-Product Coke Oven—1921

# SEMET-SOLVAY BY-PRODUCT COKE OVENS

# Iron and Steel Prices

## Iron Ore

**Superior Ores, Per Ton, Lower Lake Ports**

| | |
|---|---|
| Old range Bessemer, 55 per cent iron | $7.45 |
| Mesabi Bessemer, 55 per cent iron | 7.30 |
| Old range nonbessemer, 51½ per cent iron | 6.70 |
| Mesabi nonbessemer, 51½ per cent iron | 6.55 |

**Port Henry Iron Ore, f.o.b. Port Henry**

| | |
|---|---|
| Old bed 21 furnace | $5.80 |
| Old bed concentrates, 63 per cent | 6.70 |
| Harmony, cobbed, 63 per cent | 6.70 |
| New bed, low phos., 65 per cent | 9.50 |
| Lump ore for fix | 7.00 |

## Manganese Ore

Brazilian, 48 to 50 per cent c.i.f. Atlantic ports, 35 to 40 cents per unit, nominal.

Indian 48 to 50 per cent c.i.f. Atlantic ports, 35 to 40 cents per unit, nominal.

**FLUOR SPAR**

Washed gravel Kentucky and Illinois mines, per ton ..... $25.00

## Warehouse Prices

| | |
|---|---|
| Steel bars, Boston | 3.63c |
| Steel bars, Chicago | 3.48c |
| Steel bars, Cleveland | 3.30c to 3.34c |
| Steel bars, Detroit | 3.58c |
| Steel bars, Philadelphia | 3.60c |
| Steel bars, New York | 3.63c |
| Steel bars, St. Louis | 3.575c |
| Steel bars, Cincinnati | 3.75c |
| Steel bars, St. Paul | 3.70c |
| Steel bars, Buffalo | 3.50c |
| Iron bars, Boston | 3.65c |
| Iron bars, Buffalo | 4.20c |
| Iron bars, Chicago | 3.48c |
| Iron bars, Detroit | 3.58c |
| Iron bars, St. Louis | 3.57½c |
| Iron bars, Cincinnati | 4.30c |
| Iron bars, Philadelphia | 3.60c |
| Iron bars, New York | 3.63c |
| Shapes, Chicago | 3.58c |
| Shapes, Detroit | 3.68c |
| Shapes, Boston | 3.73c |
| Shapes, St. Louis | 3.675c |
| Shapes, St. Paul | 3.88c |
| Shapes, New York | 3.73c |
| Shapes, Cleveland | 3.40c to 3.44c |
| Shapes, Philadelphia | 3.70c |
| Shapes, Buffalo | 3.60c |
| Shapes, Cincinnati | 4.00c |
| Plates, Buffalo | 3.80c |
| Plates, Chicago | 3.78c |
| Plates, Detroit | 3.88c |
| Plates, Boston | 3.93c |
| Plates, St. Louis | 3.875c |
| Plates, St. Paul | 4.06c |
| Plates, New York | 3.93c |
| Plates, Cleveland | 3.60c to 3.64c |
| Plates, Philadelphia | 3.90c |
| Plates, Cincinnati | 3.85c |
| No. 10 blue anl. sheets, New York | 4.83c |
| No. 10 blue anl. sheets, Philadelphia | 4.80c |
| No. 10 blue anl. sheets, Chicago | 4.68c |
| No. 10 blue anl. sheets, Cleveland | 4.55c |
| No. 10 blue anl. sheets, Boston | 5.20c |
| No. 10. blue anl. sheets, Buffalo | 4.70c |
| No. 10 blue anl. sheets, Detroit | 4.78c |
| No. 10 blue anl. sheets, St. L. | 4.77½c |
| No. 10 blue anl. sheets, Cincinnati | 4.90c |
| No. 10 blue anl. sheets, St. P. | 4.96c |
| No. 28 black sheets, Chicago | 5.73c |
| No. 28 black sheets, New York | 5.88c |
| No. 28 black sheets, Philadelphia | 5.95c |
| No. 28 black sheets, Cleveland | 5.60c |
| No. 28 black sheets, Boston | 6.05c |
| No. 28 black sheets, Cincinnati | 5.50c to 5.75c |
| No. 28 black sheets, Detroit | 6.10c |
| No. 28 black sheets, St. Louis | 5.85c |
| No. 28 black sheets, St. Paul | 6.00c |
| No. 28 black sheets, Buffalo | 5.75c |
| No. 28 galv. sheets, Chicago | 7.10c |
| No. 28 galv. sheets, New York | 7.23c |
| No. 28 galv. sheets, Philadelphia | 7.50c |
| No. 28 galv. sheets, Boston | 7.40c |
| No. 28 galv. sheets, Cleveland | 6.95c |
| No. 28 galv. sheets, Cincinnati | 8.50c |
| No. 28 galv. sheets, Detroit | 7.45c |
| No. 28 galv. sheets, Buffalo | 7.10c |
| No. 28 galv. sheets, St. Louis | 7.30c |
| Bands, New York | 4.33c |
| Bands, Boston | 4.58c |
| Bands, Detroit | 4.28c |
| Bands, Buffalo | 5.30c |
| Hoops, Buffalo | 4.20c |
| Hoops, Boston | 5.00c |
| Hoops, New York | 4.58c |
| Hoops, Detroit | 4.78c |
| Cold rolled shafting, Buffalo | 5.25c |
| Cold rolled shafting, New York | 5.50c to 5.65c |
| Cold rolled shafting, Boston | 5.25c |
| Cold rolled flats, squares and hexagons, New York | 6.00c to 6.15c |
| Cold rolled rounds, Detroit | 5.00c |

## Mill Sheet Schedule

**Black**

Differentials for gage, per 100 pounds

| | |
|---|---|
| No. 30 | +20c |
| No. 29 | +10c |
| No. 28 (carloads) | Base |
| No. 27 | —05c |
| Nos. 25-26 | —10c |
| Nos. 22-24 | —15c |
| Nos. 17-21 | —20c |
| Nos. 15-16 | —25c |
| Nos. 13-14 | —30c |
| Nos. 10-12 | —35c |

**Standard Sizes**

Gages Nos. 12 to 30 inclusive, 24, 26, 28 and 30 inches wide by 72, 84, 96 and 120 inches long. Gages Nos. 14 to 28 in addition to the foregoing, 36 wide by 96 inches and 120 inches long. Extras for width and length to be added.

## Freight Rates

### PIG IRON

**Mahoning and Shenango valleys to:**

| | |
|---|---|
| Cleveland | $1.96 |
| Newark, N. J. | 6.72 |
| Boston | 7.38 |
| Philadelphia | 6.32 |
| Pittsburgh | 1.96 |
| Chicago | 5.32 |
| St. Louis | 6.44 |
| Minneapolis, St. Paul | 7.60 |

**Buffalo to:**

| | |
|---|---|
| Albany, N. Y. | $2 52 |
| New England (rail) | 5.46 |
| New York and Brooklyn (rail) | 5.46 |

**Virginia furnaces to:**

| | |
|---|---|
| Philadelphia | $5.74 |
| New England | 6 58 |
| Brooklyn, Jersey City, Newark | 6.16 |

**Birmingham, Ala., to:**

| | |
|---|---|
| Boston | $10.665 |
| Boston (rail and water) | 7.65 |
| Cincinnati | 4.50 |
| Chicago | 6.66 |
| Cleveland | 6.66 |
| Louisville, Ky. | 4.12 |
| Minneapolis, St. Paul | 9.73 |
| New York | 10.26 |
| Philadelphia | 8.665 |
| Pittsburgh | 7.60 |
| Savannah, Ga. | 4.25 |
| St. Louis | 5.725 |

**Chicago to:**

| | |
|---|---|
| Des Moines | $4.725 |
| Minneapolis, St. Paul | 3.375 |
| Milwaukee | 0.89 |
| Moline, Ill. | 1.89 |
| Omaha | 6.07 |
| St. Louis | 2.725 |

**Ironton and Jackson, O., to:**

| | |
|---|---|
| Chicago | $5.32 |
| Cincinnati | 2.52 |
| Cleveland | 3.36 |
| Detroit | 3.64 |
| Indianapolis | 3.22 |
| Minneapolis, St. Paul | 8.40 |

### FINISHED MATERIAL

**Pittsburgh, carloads, per 100 lbs., to:**

| | |
|---|---|
| New York | 38.0c |
| Philadelphia | 35.0c |
| Boston | 41.5c |
| Buffalo | 29.5c |
| Baltimore | 33.5c |
| Cleveland | 24.0c |
| Cincinnati | 32.0c |
| Chicago | 38.0c |
| Detroit | 32.0c |
| Minneapolis and St. Paul | 66.0c |
| Denver | $1.32 |
| St. Louis | 47½c |
| New Orleans | 51.5c |
| Birmingham | 76.5c |
| Pacific coast (all rail) | $1.665 |
| Pacific coast (tin plate) | 1.665 |

**GALVANIZED AND LONG TERNE**

| | |
|---|---|
| No. 30 | +50c |
| No. 29 | +25c |
| No. 28 (carloads) | Base |
| No. 27 | +15c |
| Nos. 25-26 | —30c |
| Nos. 22-24 | —45c |
| Nos. 17-21 | —60c |
| Nos. 15-16 | —75c |
| Nos. 12-14 | —75c |
| Nos. 12-14 | —90c |
| Nos. 10-11 | —1.00 |

**Standard Sizes**

Gages Nos. 12 to 30 inc., 24, 26, 28, 30 and 36 in. wide by 72, 84, 96 and 120 in. long. Extras for width and length to be added.

**BLUE ANNEALED**

Differential for gage for 100 pounds

| | |
|---|---|
| Nos. 8 and heavier | — 5c |
| Nos. 9 and 10 (carloads) | Base |
| Nos. 11 and 12 | + 5c |
| Nos. 13 and 14 | +10c |
| Nos. 15 and 16 | +20c |

**Standard Sizes**

Widths—24-26-28-30-36 and 48 inches.
Lengths—72-84-96-120 and 144 inches.
Extras for width and length to be added.

## Tubular Goods

Pittsburgh basing discounts to jobbers in carloads.

### Steel Pipe

**STANDARD WEIGHT**

| | Black | Galvanized |
|---|---|---|
| **Butt Weld** | | |
| ⅛, ¼ and ⅜-inch | 50½ | 34 |
| ½-inch | 54½ | 40 |
| ¾ to 3-inch | 57½ | 44 |
| **Lap Weld** | | |
| 2-inch | 50½ | 38 |
| 2½ to 6-inch | 53½ | 41 |
| 7 to 12-inch | 50½ | 37 |
| 13 to 14-inch | 41 | .. |
| 15-inch | 38½ | .. |
| **PLUGGED AND REAMED** | | |
| **Butt Weld** | | |
| 1 to 3-inch | 55½ | 43 |
| **Lap Weld** | | |
| 2-inch | 48½ | 36 |
| 2½ to 6-inch | 51½ | 39 |
| **EXTRA STRONG PLAIN ENDS** | | |
| **Butt Weld** | | |
| ⅛, ¼ and ⅜-inch | 46½ | 29 |
| ½-inch | 51½ | 39 |
| ¾ to 1½-inch | 55½ | 43 |
| 2 to 3-inch | 56½ | 44 |
| **Lap Weld** | | |
| 2-inch | 48½ | 37 |
| 2½ to 4-inch | 51½ | 40 |
| 4½ to 6-inch | 50½ | 39 |
| 7 to 8-inch | 46½ | 33 |
| 9 to 12-inch | 41½ | 28 |
| **DOUBLE EXTRA STRONG PLAIN** | | |
| **Butt Weld** | | |
| ½-inch | 42½ | 32 |
| ¾ to 1⅛-inch | 45½ | 35 |
| 2 to 2½-inch | 47½ | 37 |
| **Lap Weld** | | |
| 2-inch | 40½ | 31 |
| 2½ to 4-inch | 42½ | 33 |
| 4½ to 6-inch | 41½ | 32 |
| 7 to 8-inch | 36½ | 23 |

### Wrought Iron Pipe

Pittsburgh basing discounts to jobbers in carloads.

**THREADS AND COUPLINGS**

| | Black | Galvanized |
|---|---|---|
| ¼-inch | + | + 35 |
| ⅜-inch | 15½ to 25½ | + 1½ to 11½ |
| ½-inch | 19½ to 29½ | 1½ to 11½ |
| ¾ to 1½-inch | 24½ to 34½ | 8 to 18½ |
| **Lap Weld** | | |
| 2-inch | 20½ to 28½ | 6½ to 14½ |
| 2½ to 6-inch | 22½ to 30½ | 9½ to 17½ |
| 7 to 12-inch | 19½ to 27½ | 6½ to 14½ |

**PLUGGED AND REAMED**

Two points less than above

**EXTRA STRONG PLAIN ENDS**

| | Black | Galvanized |
|---|---|---|
| **Butt Weld** | | |
| ¼-inch | + 9 | + 35 |
| ⅜-inch | 13½ to 23½ | 6½ to +3½ |
| ½-inch | 18½ to 28½ | 5½ to 15½ |
| ¾ to 1½-inch | 24½ to 34½ | 9½ to 19½ |
| **Lap Weld** | | |
| 2-inch | 21½ to 29½ | 8½ to 16½ |
| 2½ to 4-inch | 23½ to 31½ | 11½ to 19½ |
| 4½ to 6-inch | 22½ to 30½ | 10½ to 18½ |
| 7 and 8-inch | 14½ to 22½ | 2½ to 10½ |
| 9 and 12-inch | 9½ to 17½ | 5½ to +2½ |

**DOUBLE EXTRA STRONG, PLAIN ENDS**

| | Black | Galvanized |
|---|---|---|
| **Butt Weld** | | |
| ½-inch | 15½ to +39½ | 3½ to +51½ |
| ¾-inch | 20½ to +22½ | 8½ to +34½ |
| 1-inch | +38½ | +50½ |
| 1¼-inch | +22½ | +34½ |
| 1½-inch | +21½ | +33½ |
| **Lap Weld** | | |
| 2-inch | 16½ to + 7½ | 4½ to +10½ |
| 2½ to 4-inch | 18½ to + 7½ | 4½ to + 10½ |